

MAR 11 1929

The Dental Digest

March 1929

PROPERTY OF
DENTAL LIBRARY
UNIVERSITY OF MICHIGAN
DON'T MUTILATE OR
REMOVE

Editor-

GEORGE WOOD CLAPP, D. D. S.

*Publisher-*THE DENTISTS' SUPPLY COMPANY of New York

THE DENTAL DIGEST

VOLUME XXXV

MARCH, 1929

NUMBER 3

CONTENTS

CONTRIBUTED ARTICLES

PAGE

The Gothic Arch Tracing. FRANK H. McKEVITT, D.D.S.	145
A Consideration of Art In Artificial Denture Work. GEORGE W. DUNCAN, D.D.S.	156
An Open Letter to the Profession. HENRY A. COLLETT	161
Porcelain Manipulation. F. R. FELCHER, D.D.S.	166
Orthodontic Principles for the Man In General Practice. RALPH P. HOWARTH, D.D.S.	169
Oral Surgery In Practice. JAMES L. ZEMSKY, D.D.S.	176
A Clean Tooth Never (?) Decays. T. A. LEACH, D.D.S.	180
Dental Judgment. MONROE C. HASSE, D.D.S.	183
The Care of the Hands. J. ARTHUR DAVIS, D.D.S.	184
Scientific Research of the Fédération Dentaire Internationale	186
Death of Victor Hugo Jackson, M.A., M.D., D.D.S., F.A.C.D.	188
Chicago Dental Society Meeting	189
The New Dental School of Port-Au-Prince	190

FEATURES

DIGESTS	191
PRACTICAL HINTS	197
DENTAL ECONOMICS	201
DENTAL SECRETARIES AND ASSISTANTS	204
EXTRACTIONS	211
FUTURE EVENTS	212

THE DENTAL DIGEST

GEORGE WOOD CLAPP, D.D.S., EDITOR

ALLAN M. JOHNSON, A.B., D.M.D., ASSOCIATE EDITOR

Published monthly, by THE DENTISTS' SUPPLY COMPANY of New York, 220 West 42nd Street, New York, U. S. A., to whom all communications relative to subscriptions, advertising, etc., should be addressed.

Subscription price, including postage, \$1.00 per year to all parts of the United States, Philippines, Guam, Cuba, Porto Rico, Mexico, and Hawaiian Islands.

To Canada, \$1.40. Great Britain and Continent, \$2.75. Australia, \$3.25. To all other Countries, \$1.75.

Articles intended for publication and correspondence regarding the same should be addressed EDITOR DENTAL DIGEST, Candler Bldg., Times Square, 220 West 42nd Street, New York, N. Y.

The editor and publishers are not responsible for the views of authors expressed in these pages.

Entered as Second Class Matter, at the Post-office at New York City, N. Y., January 29, 1909, under the Act of Congress, March 3, 1879.

THE DENTAL DIGEST

VOLUME XXXV

MARCH, 1929

NUMBER 3

The Gothic Arch Tracing

By FRANK H. McKEVITT, D.D.S., San Francisco, Cal.

Full denture cases that come within the range of the prosthodontist may be divided into three groups. The first is made up of patients who are to become edentulous, and for whom the mouth must be prepared for the reception of artificial dentures. Those in the second group may have either an edentulous mandible or an edentulous maxilla only. Those in the third group are entirely edentulous. In almost all of the foregoing cases the asymmetrical loss of the teeth has created paths for the lateral movements of the mandible which are different from the paths that were used when all the teeth were present. These asymmetrical paths, acquired through a period of years, become the habitual channels for the mandibular movements, and the muscular habits thereby become fixed.

To facilitate the use of these asymmetrical lanes and the habitual masticating movements when the mouth is restored with artificial dentures becomes the task of the prosthodontist. Because of the more general use of the adaptable articulator by the profession this problem is becoming more simplified and better results are being achieved.

Here is a report on seventeen cases wherein Dr. Gysi's latest form of articulator was used in conjunction with check-bites and the Gothic arch tracing of Gysi. Right and left lateral

checks were employed to register the condyle inclinations intra-orally. A protrusive check was used to set the incisal table for the downward inclination of the incisor path.

The Gothic arch tracing is the record of the protrusive and the right and left mandibular movements in the horizontal plane. It is used not because it records habitual masticating movements but because these movements are the most easily recorded.

When the occlusion rims have been fitted, a path marker is attached to the upper rim in the median line. To the lower rim is attached a horseshoe plate smeared with black carding wax. The apex of the arch is recorded as a dot when the pin is released, while the jaw is in centric position. The point thus established then becomes the starting-point for the right, the left and the central lines that comprise the tracing. When a clean-cut Gothic arch has thus been produced in the wax, it is then scribed in the horseshoe plate with a graving instrument, thus preserving the integrity of the tracing against the check-bites.

The right and left lateral checks are made by fixing the pin five millimeters away from the arch apex, directly over the line, and allowing the compound to chill. The protrusive check is obtained by a similar procedure. The pin is

finally brought to the apex, and the rims locked in position. The casts are placed in position, and the case is ready for mounting on the articulator, with or without a face bow.

SETTING THE ARTICULATOR

The incisor guide pin is set to the shoulder, and the protrusive check is set. The incisal table is then brought in contact with the incisor guide pin and locked. The degree plates on the incisal table are next adjusted to the right and left sides of the tracing and locked. The lateral check is then placed and the condyle set on the balancing side. With the same check still in this position the degree plate for the Bennett curve on the working side is brought into contact with the roller bearing and locked. Repeat this pro-

cedure for the opposite side. The incisor path marker should now follow the tracing, and the incisor guide pin should follow the degree plates on the incisal table.

Figs. 1-11 show casts of cases of the right and left sides before the teeth were removed, the tracing of the edentulous jaws, the chart of the articulator registrations, and the chair time. It will be interesting to observe and compare the occlusion on one side of the cast with the tracing for the same side and the numeral registrations on the articulator.

This, it is hoped, will be clear. The rotation center degree plate designates the registration, on the articulator, of the tracing itself. The average for the Bennett curve is $2\frac{1}{2}$, for the condyles 30, for the rotation center degree plates 3, and for the incisal table 30.

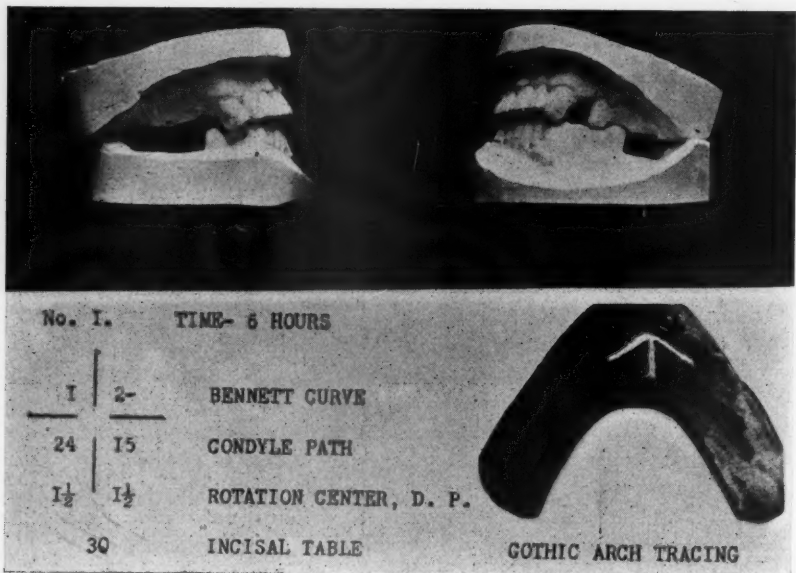


Fig. 1.

FIGURE 1. The chair time is recorded because it represents the only time spent on the case, aside from time spent on relieving sore spots, which was comparatively nil.

The time is divided thus:

- 1½ hours for impressions,
- 2½ hours for occlusion rims and registrations,
- 1 hour for rearranging the anterior teeth,
- 1 hour for the grind-in.

The expenditure of this and more time is justified at the outset, as it proves economical in the end.

It will be interesting to note that the Gothic arch tracing in this case presents a 62° angle on the left side of the tracing and a 55° angle on the right side.

FIGURE 2. The angle on the right side of this tracing is 45° and on the left 69°.

The average is 60° on one side, or 120° for both. Note the locked bite on the left side of the cast and the restricted tracing for the same side on the horseshoe plate.

FIGURE 3. A lower partial denture in this case shows a convex occlusal surface on the left and a concavity on the right. The tracing shows that there was more freedom of movement on the left than on the right.

The left side of the tracing presents an angle of 58°, and the right 70°.

FIGURE 4. The angles of this tracing are 72° on the right and 56° on the left. The patient was wearing a full upper denture.

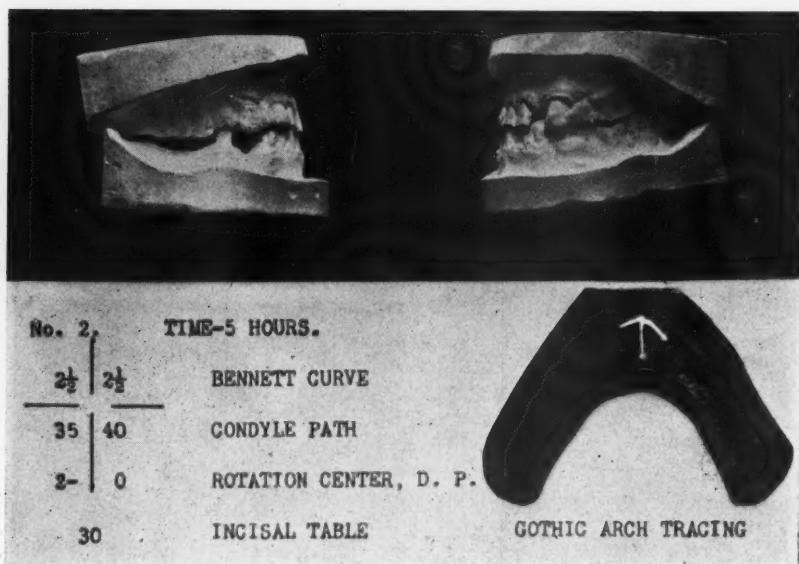


Fig. 2.

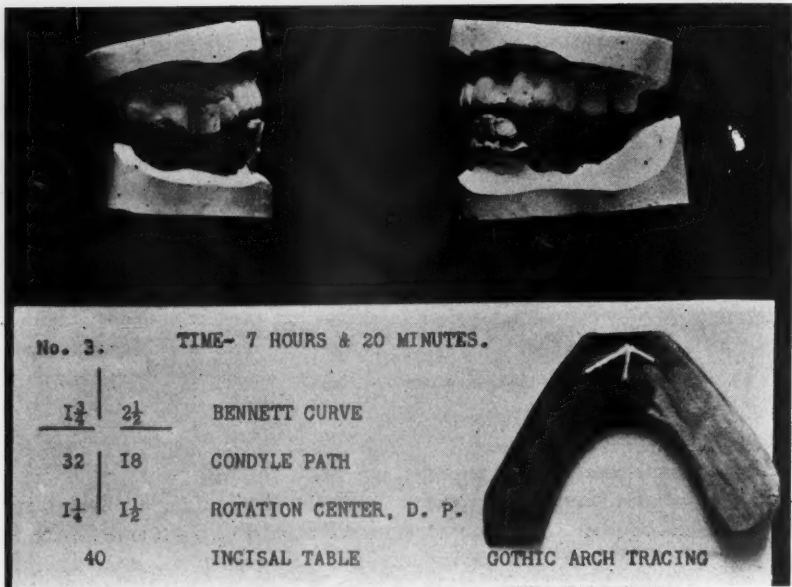


Fig. 3.

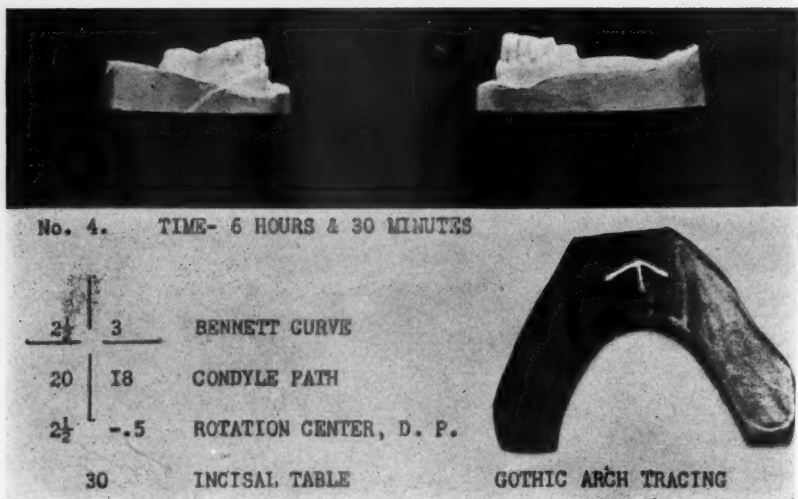
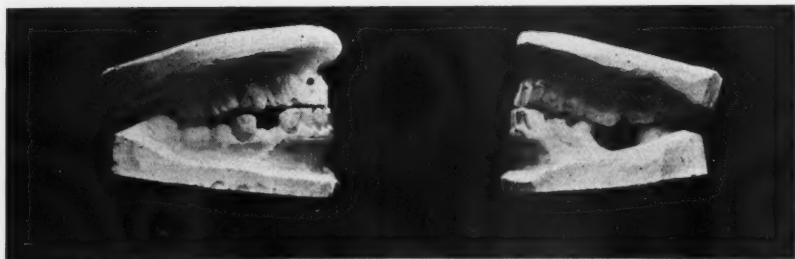


Fig. 4.



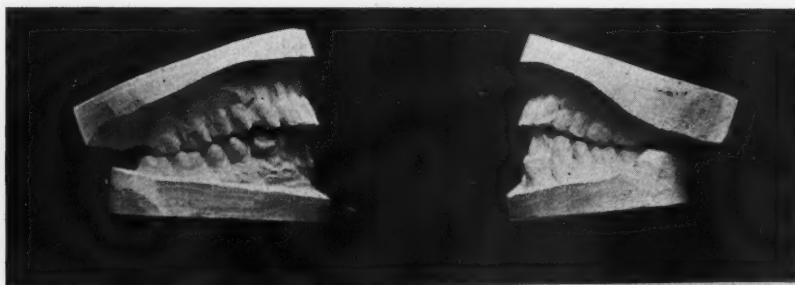
No. 5. TIME- 6 HOURS & 15 MINUTES

1	$2\frac{3}{4}$	BENNETT CURVE
20	18	CONDYLE PATH
$1\frac{1}{2}$	2-	ROTATION CENTER, D. P.
20		INCISAL TABLE



GOthic ARCH TRACING

Fig. 5.



No. 6. TIME- 3 HOURS & 45 MINUTES

2.5	3	BENNETT CURVE
40	40	CONDYLE PATH
.5	3	ROTATION CENTER, D. P.
30		INCISAL TABLE



GOthic ARCH TRACING

Fig. 6.

FIGURE 5. The right and left sides of the casts show favorable occlusal planes. The tracing is almost symmetrical, it being 62° on the left and 65° on the right. This case would have been a success on a non-adaptable articulator which is fixed for these movements at 60° on the right and left sides, or a total of 120° .

FIGURE 6. The tracing angles here are 70° on the left and 64° on the right. When artificial teeth are arranged for these asymmetrical angles, very little grinding is necessary. The dentures are not dislodged by unrecognized contacts. The patient learns to use them quickly and is better satisfied.

FIGURE 7. Note the variation in the

Bennett curve, there being 3 points difference on the right and left sides of the articulator and 8 points difference in the condyles. The tracing is 61° on the left and 42° on the right.

FIGURE 8. This tracing shows a 55° angle on the left, and one of 63° on the right. The extreme right condyle variation of 18 points from its companion on the left will cause reflection when the casts are viewed from the two sides and compared with each other.

FIGURE 9. The cast shows a favorable occlusal plane on the left. The tracing is almost average, 62° left, 60° right. The casts here might explain the 13-point difference in the right and left condylar registrations.



Fig. 7.

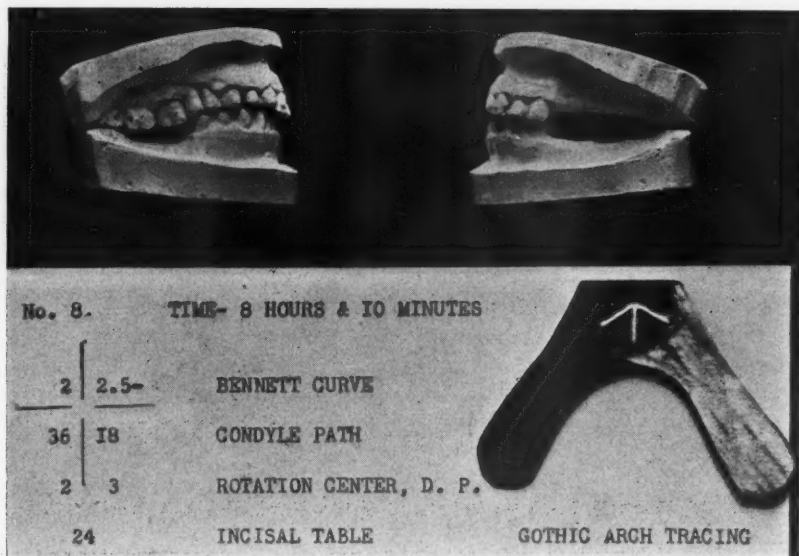


Fig. 8.

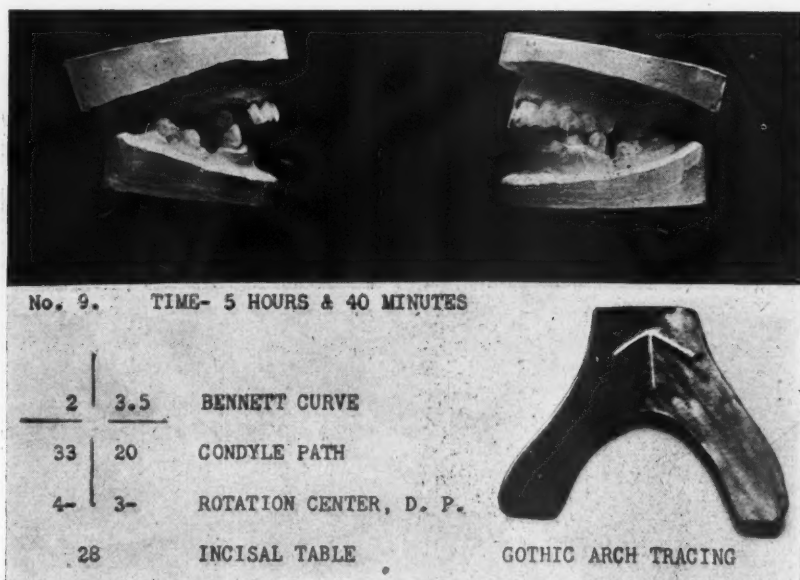


Fig. 9.

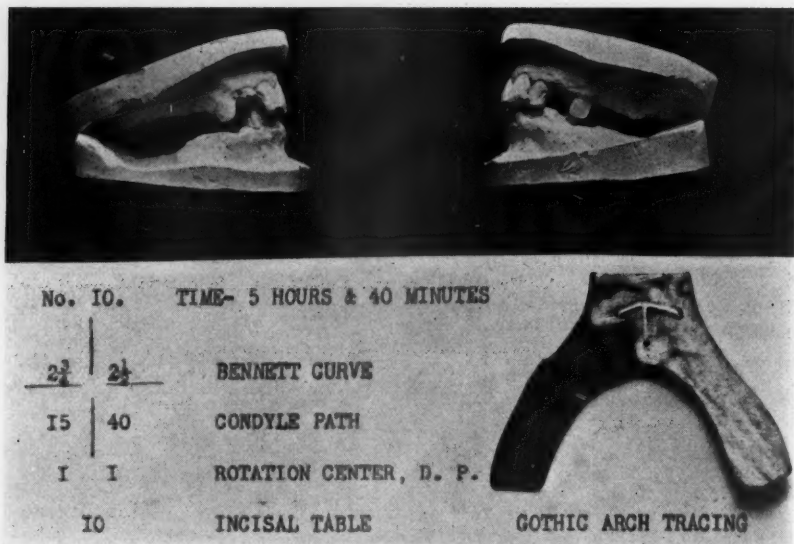


Fig. 10.

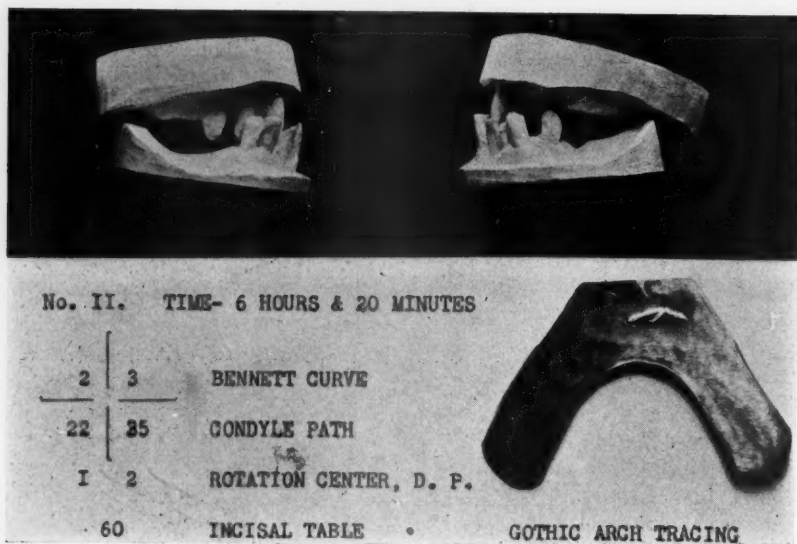


Fig. 11.

FIGURE 10. This tracing shows the greatest deviation from the average of 60° . On the left the angle is 83° , and on the right 80° . Note the condyle difference in the registration chart. The incisal table was set at 10° , the average being 30° .

FIGURE 11. The remarkable difference between Figures 10 and 11 is in the incisal table. This case obviously was of an inferior protrusion. The left side of the tracing is 75° , the right 68° .

FIGURE 12. These two cases come within the second grouping, that of edentulous maxillae with natural teeth in the mandibles.

A glance at the casts shows the planes

to be favorable. A Gothic arch tracing cannot be employed in these cases. Check-bites only are used to set the articulator.

FIGURES 13-14. These cases come under the heading of previous denture-wearers. The charts are of average and abnormal registrations. The interesting feature of this group of six cases will be found in No. 6A, which presents a symmetrical 45° angle on the right and left sides. This represents the opposite of the tracing in Figure 10, where the degree plates for the tracing were set at 1 and 1, while here they are set at 4 and 4.

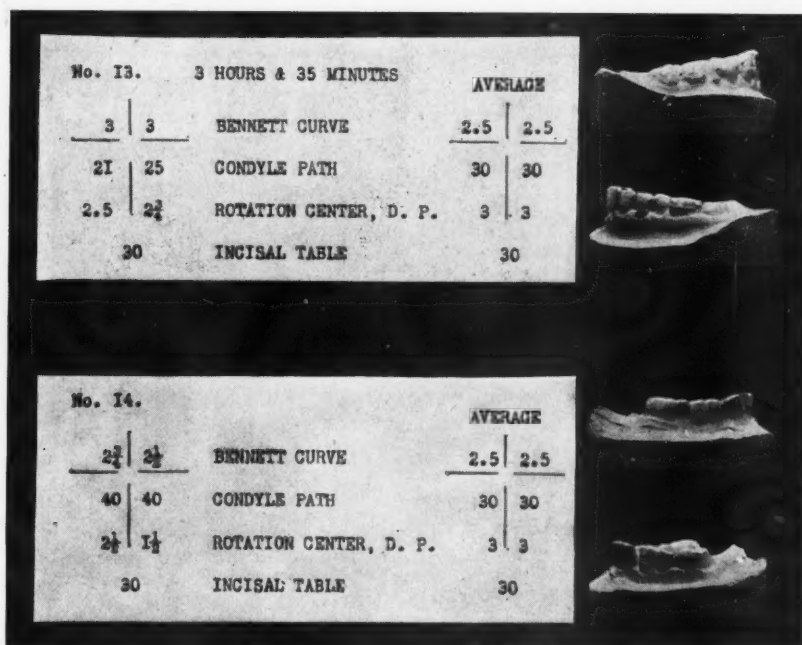


Fig. 12.

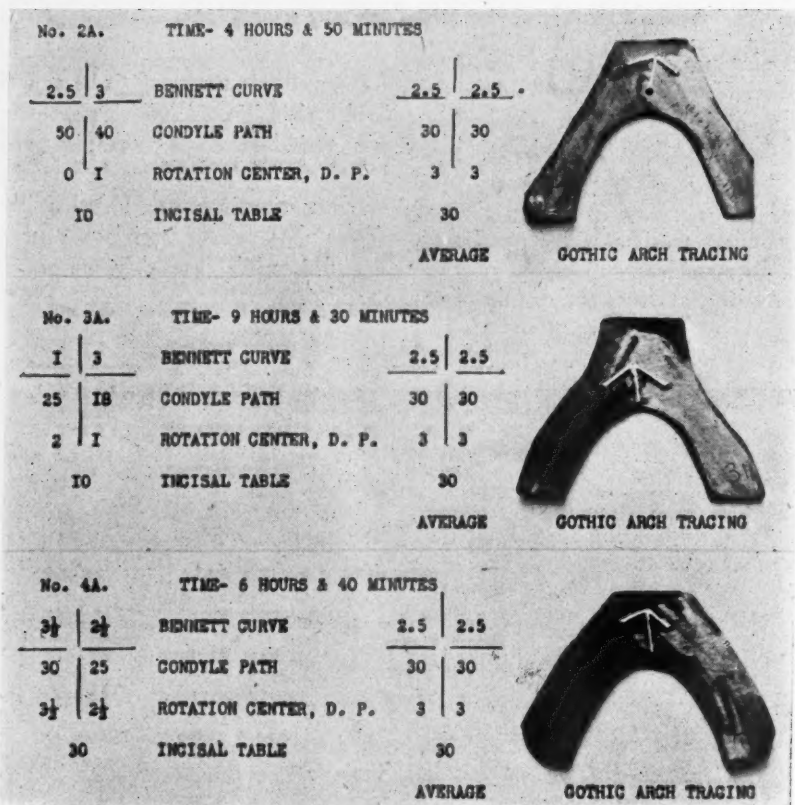


Fig. 13.

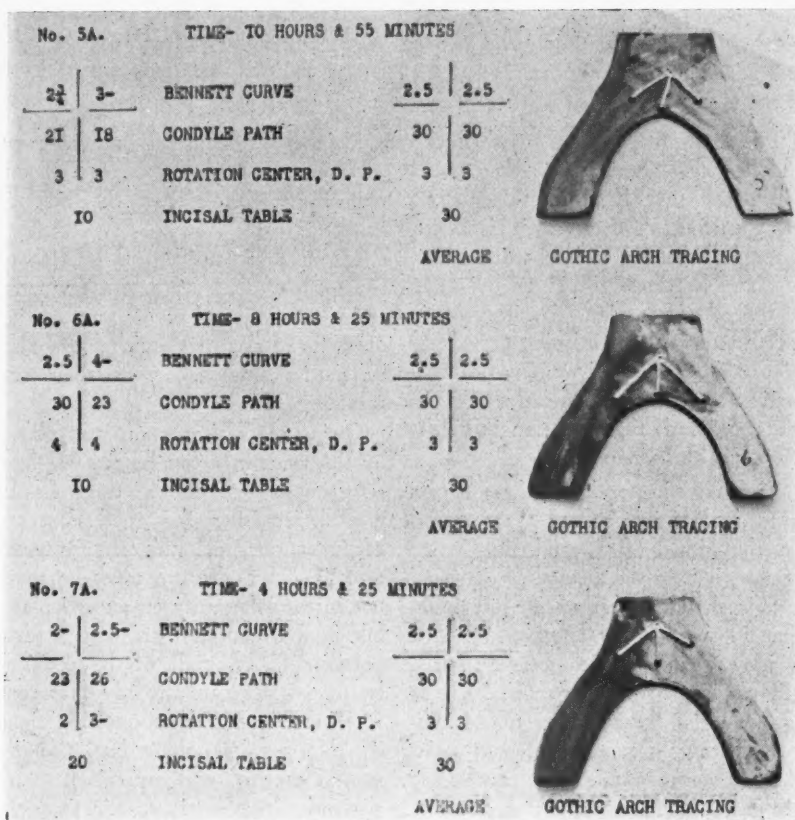


Fig. 14.

The conclusions to be drawn from this presentation and thirty others, making a record of fifty cases in all, are:

1. That the use of an adaptable articulator is justified for all cases.
2. That failures are minimized, as more care must be used by the operator,

because of the exacting technic required.

3. That satisfactory results make pleased patients.

4. That the work itself is a source of pleasure to the operator.

291 Geary Street.



A Consideration of Art In Artificial Denture Work*

By GEORGE W. DUNCAN, D.D.S., Richmond, Va.

The desire to possess a boyish figure and to have beautiful clothes with which to attire it is the Utopia of many a woman's dreams. This desire is so great that many times we see comfort and health sacrificed on the altar of the god of fashion. Its intensity is shown also in the flourishing growth of beauty shops, the universal use of cosmetics, and the innumerable beauty hints and fads that are seen in magazines and daily papers.

Probably nine-tenths of these efforts toward obtaining beauty are centered on the human face, and rightly so, because it is in the direct line of vision and is the first part of an individual that is observed by another. It is a window through which we may get a glimpse into the human soul. Here as nowhere else the character of an individual leaves its mark. Many times the first view of a face gives us a lasting impression of good or evil concerning its owner. An individual is usually stamped as beautiful or ugly by the appearance of the face.

As facial beauty is of greater importance to women than to men, this paper will be dedicated to that noble purpose of making woman more beautiful, but most of the principles discussed are applicable to men also, whose faces present a less difficult problem.

Realizing the importance of facial beauty and the relation of our work to

it, we, then, as dentists, should use every possible means at our disposal if our patients are to receive the best of service.

Let us first consider the relation of the teeth to the face and a few principles that will aid in the construction of artificial dentures which harmonize, as nature intended, with their surrounding tissues.

Owing to the important part played by the teeth in facial beauty, we have esthetics as one of the three fundamental requisites for good dentures. However, our final judgment as to the esthetics of a denture must be made not in the laboratory on an articulator but in the mouth, where only a small portion, if any at all, of the teeth can be seen. We can also say that comfort involves not the supporting tissue of the dentures alone but also the mental comfort and ease given to the patient. Neither is masticating efficiency the sole guide to usefulness, for the patient's countenance must be restored to such a degree that the face will serve him in gaining friends, fame or fortune.

We must consider three other important factors if we are to produce beautiful, useful and comfortable dentures: (1) the man who does the work and the way in which he does it; (2) the patient, or the conditions and problems encountered in doing the work; (3) the public and its attitude, for, unless people are pleased, the work is not a complete success. The latter

* Read before the Richmond Dental Society, Richmond, Va., September 20, 1928.

greatly increases our difficulties, for the observer can see only the final result and not the obstacles that lay in the way.

Before an attempt is made to restore lost facial beauty by artificial means we should ask ourselves the question—what is it that normally creates this beauty of face which is so attractive? We do not have to look long at a face to tell whether it is beautiful. If it is, we usually look as long as possible. It is the harmony, the balance and the color of the face, as in everything else, that mark it as beautiful. There must be a harmonious relation between the form and arrangement of the teeth and the form of the face and the dental arch. Perfect balance between the different parts of the face is essential. By balance we mean the proper fullness of cheeks and lips and proper length to that part of the face below the lower border of the nose. Normally this part makes up one-third of the length of the face. A color balance and harmony must exist also between the patient's general complexion and the teeth used. For instance, who could imagine anything more unsightly than teeth of a grayish-brown hue in the mouth of a blonde?

Harmony of form, however, is of greater importance than color harmony. Charles Blanc, art critic, said, "Had God intended to place color above form, He would not have failed to clothe His masterpiece—man—with all the hues of the humming bird." Some one else has said: "Painting is nothing more than drawing," indicating that form is of greater importance. For example, whoever saw a white man who could paint his face black and

pass for a negro or a negro with a white face who could conceal his identity? So it is with the teeth. A square tooth does not harmonize with a tapering face any more than the features of the negro harmonize with those of the white man.

The influence of environment on art is so great that the artist is usually nervous as to how his work will appear when given its final location or mounting. An ugly frame or improper surroundings will, in a measure, destroy the beauty of a painting. Improper lighting destroys the full effect and significance of a piece of sculpture. The greatest masterpieces may go unnoticed by an uncultured public. This influence of environment on art is much greater than that of art on environment. The effect of environment on the denture must also be given due consideration. The head, its covering, color, shape, and the tissues of the mouth constitute the environment of the denture. If the denture fits into its environment or if the environment is changed to fit it, then harmony is established and pleasing results will be obtained.

In considering the environment of the denture let us first take the head, as in shape and size it is relatively unchanging. James Leon Williams and others have shown that there are three typical forms of head, namely, square, tapering and ovoid. Furthermore, these men have shown that the form of the dental arch is in harmony with the form of the head, and that the form of the teeth, especially the maxillary anteriors, harmonizes with the shape of the head and arch. Therefore in artificial denture work

the form of the head and arch controls the form of the teeth and their arrangement.

In arriving at the form of the face, only the bony parts should be taken as landmarks. The facial form may be outlined by taking four simple measurements of the head: the median line of the face from the chin to the scalp and three lines through the head, from temporal ridge to temporal ridge, from zygoma to zygoma, and from the angle of the mandible to the angle on the opposite side. When the outline of a maxillary incisor is constructed with these lines limiting its dimensions, we have an accurate guide as to the form of teeth to be used.

The incisal edges of the teeth should in most cases be placed on a line that is parallel to an imaginary line drawn through the center of the eyes and also to the line formed by the lips when relaxed. If this is not done, the finished work may present the same conspicuous and unsightly appearance as a picture in a lopsided frame or an envelope with the lines of the address not parallel to its top and bottom margins. However, the softness of the lip line, the difference in size and shape of the teeth and their arrangement break the severity and monotony usually experienced in looking at parallel lines. It must be remembered also that the line of the incisal edge will appear to have an upward curve if the teeth are set in at the neck and given a disto-labial inclination. The line appears to curve downward if the necks of the teeth incline distally, and if the labial surfaces have a vertical or a lingual slant.

In order to give an idea as to the

problem of esthetics, I have mentioned briefly a few of the important points that confront us when we attempt to construct artificial dentures that will be works of art. After we have done our best in selection, arrangement and construction, the patient may have good dentures, but many times still possesses a face that might be termed, as Clarence Budington Kelland has said, "useless except for identification purposes."

In these extreme cases we have another example of the influence of environment on art. It is here that the environment must be changed if we wish to put a little more art into our artificial denture work and give greater satisfaction to our patients. As the word *prosthetics* is derived from two Greek words meaning *to add to*, we should do all in our power then to add to the beauty, comfort and usefulness of the patient's face. Improvement can easily be made in many cases by acquainting patients with and getting them to apply a few fundamentals of cosmetics, optics and balance.

How, then, can our patients improve their features through a knowledge of cosmetics? Face powder on the nose makes it appear smaller, color increases its prominence. Darkened eyelids and lashes make the eyes appear larger and brighter. Added color to cheeks and lips changes these areas to centers of attraction. To prove this drawing power of color, was not the universal use of rouge followed by an epidemic of promiscuous kissing? Therefore the main idea is to powder the spots that are too prominent and touch up with color those that tend to make the face appear thin or flat. By this simple

method a person with an unbalanced condition of the face caused by a large nose and a receding chin can work miracles in the improvement of the face by the application of powder to the nose and rouge to the chin.

In the science of optics we are amazed and puzzled many times by the way in which lines of known equal length appear unequal and known shapes apparently change under our eyes. Optical illusions are used to make the tall seem short, the short tall, the stout thin, and the thin stout. They may be used just as effectively in making faces seem to be what they are not. The cut or arrangement of the hair, the lines of the brow, the shape of the lips, the angle of the mouth, and the adornment of the neck can be used effectively in broadening, narrowing, tapering or rounding the face. The following examples illustrate the application of the science of optics. A tapering face seems less triangular when the brows and lips present horizontal lines, and when the collar or neck of the clothing follows a square or oval line instead of a V-shaped arrangement. The line formed by the latter tends to exaggerate the natural condition of the face. The same principle holds true in relation to beads or pendants worn about the neck. Earrings broaden the face. Parting the hair in the middle and allowing the strands to pass diagonally across the temples will narrow a broad forehead and make it harmonize better with a thin, narrow jaw. Such an arrangement of the hair also shortens the face.

In considering balance we have balance of color, balance of lines, balance of masses and balance of form. The

fundamentals of balance in art and in artificial denture work are the same as those that all of us worked out when we were children on the seesaw or the teeter board, except that we probably did not figure that warm colors are lighter and can be placed farther from the center of support than the heavy, cold ones. As you can readily see, to obtain balance there must be a point of support and the relative parts must be separated from this center in an inverse proportion to their mass. The hair is the only part of the head that can actually be moved about to remedy unbalanced facial conditions. Wearing the hair low on the neck counterbalances a weak chin. It may be so arranged as to broaden or narrow the face and to raise or lower the forehead. Color balance may be used effectively in adding weight to any weak part of the face such as the lips, the cheeks, the chin or the nose. Another example of color balance is the use of light-hued teeth in order to increase their prominence when it is necessary to set them rather far back in the mouth.

An effort has been made in this paper to show the value and importance of facial beauty. The rôle played by the teeth in nature's scheme of beauty has been emphasized by mentioning the harmonious relations they bear to the other parts of the face. Some of the problems met with in securing this relation have been discussed with the idea of bringing about their solution. I have tried to show that many times the failure to obtain pleasing results from the point of view of esthetics is due not to the teeth but to an inharmonious relation of other parts of the

face, and that a remedy for some of these cases can be secured by having the patient bring about an apparent change of the surrounding tissues through an application of the principles of cosmetics, optics and balance.

This is merely a sketch of the possibilities we have at our disposal for putting a little more art into our artificial denture work. It may be entirely

too fanciful in parts and may possess little that is of practical value, but if faces alter circumstances to anything like the same degree as circumstances alter faces, should we not use every known idea, no matter how fanciful, if it will reduce a fellow-man's misery and make him more desirable company for his neighbors and friends?

410 Professional Building.



[SMOOTH CASTINGS]

Roughness of the casting is always due to a degree of porosity which permits the gold to enter the surface of the mould, resulting in enlarging our casting, and causing a corresponding misfit. When the proper technic is employed, the filter coat will be impervious to gold, but will readily permit the passage of air; which results in a casting that is an accurate reproduction of the wax pattern.

—MORRIS.

An Open Letter to the Profession

By HENRY A. COLLETT, Philadelphia, Pa.

President of the Dental Laboratory Association of Philadelphia

The time has come when mechanical dentistry must be placed upon a different plane. The need is imperative. The profession holds the laboratory in the hollow of its hand, so that what the profession demands it will receive—no more, no less. The responsibility is on the dentist. If the dentist is satisfied with any kind of makeshift work by an amateur, merely because it is cheap; if the profession seeks the cheapest possible product regardless of quality, such—and no other—will be the answer of some laboratories. Laboratories will spring up to meet the demand until the demand itself is no longer possible of fulfillment, because it has gone beyond the point at which even the lowest grade of laboratory can be self-sustaining. The profession, therefore, cannot wholly blame the laboratory nor hold laboratories in general in light esteem. They are of the standard required by the dentist.

To raise and maintain the standard, some of the work must be done by the dentist. The exact conditions in the mouth must be given to the laboratory, not merely something similar. Impressions and bites, etc., must be accurately and clearly defined, with the center line and lip lines marked.

The modern dentist has not the time of the old-fashioned practitioner. If, therefore, he would still conserve his time, he should in the first instance give the laboratory such a skillful representation of what he desires that the

mechanical execution of his requirements will be infallibly met, thus avoiding the necessity of revising the work or doing it all over again.

To repeat, the relation between the laboratory and the dentist depends as much upon the members of the profession as upon the laboratories themselves. Even the character of the laboratory depends upon the dentist. Those who fail to give the laboratory the esteem to which it should be entitled should see the situation as it really is and place the blame where it rightfully belongs, very probably upon themselves. They are themselves partly responsible for the condition that they deplore.

When each member of the profession demands and insists upon work of the best sort and refuses to accept or look for the cheapest possible product, regardless of quality, such a demand will in time react upon the supply. The fact that there are laboratories held in light esteem is the fault of the dentists who support them; otherwise they would not exist.

I therefore ask the support of the profession in my efforts to elevate the standard of all dental laboratory work.

Under existing conditions, and with the present lack of dental laboratory unity and standards (for which lack of unity and standards the laboratories as a whole have been so far in the past responsible), such a thing as that proposed has not been possible. But, if the profession will support such unity

and standards as are now proposed and will cooperate in raising the dental laboratory standards, it will certainly and surely be accomplished to the great satisfaction of the profession at large and for the welfare of those whom we all ultimately serve.

Real Estate Trust Building.

Examples of Poor Impressions Submitted



Fig. 1.

The impression from which this model was made was submitted to me by a dentist for a full lower denture. I refused to make a plate, so later I received a better impression, especially in the anterior region. The ridge is hardly visible. Some mouths, of course, have ridges that are flat, but this mouth, although flat, was nowhere nearly so flat as the impression, as was later established by the second impression.



Fig. 2.

This model, made from a compound impression, shows that the teeth were badly drawn and it would be difficult for a laboratory to get the porcelain teeth in the correct line. It is possible, however, to get much sharper impressions with compound, if the Supplee-Greene method is used.



Fig. 3.

Here we have a model for a partial lower submitted to me to make a lower rubber denture. What we have of this model is fairly good, but it will be noticed that the posterior region on both sides is partly missing. Since the bite showed that there were upper molars that would have elongated, it was imperative to have a new impression.

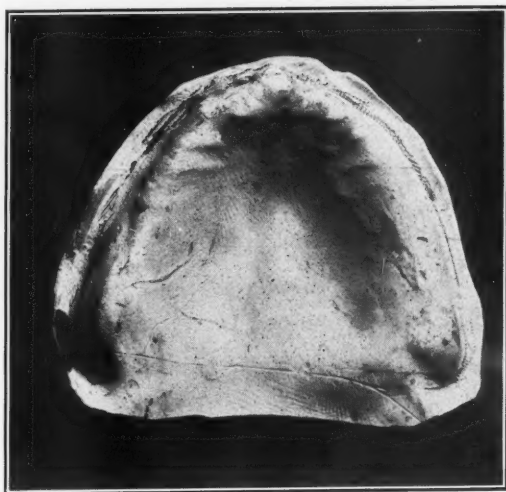


Fig. 4.

Here we have a model for a full upper rubber denture. Observation of this model, which is very interesting, shows an extremely poor outline of the anterior ridge. The effect of making a denture upon such a model is to cause the gum to grow over the edge of the denture. I have known of three successive lobes being formed in this manner in one mouth, so that the patient was advised to go to the hospital to have them cut flat. In that case, however, I came out over the last lobe, so that the lobes were gradually absorbed and the patient did not have to submit to an operation. Had a proper impression been taken in the first place or if the laboratory had refused the model, the patient would, of course, never have had the lobular gum growth.



Fig. 5.

It will be noticed that the buccal ridge on the upper right side is not shown. Had I carved this model to what I thought the ridge ought to be, the chances were that the appliance would not have fitted, therefore I rejected it and had a better impression submitted.

1



Fig. 6.

Here is another full lower model submitted to make a rubber denture. This was a recent extraction. As shown here, it was quite flat. I refused to make the denture, so the second impression gave me a much deeper ridge and clearer outline of the mouth.



Fig. 7.

Instead of the front ridge having good sharp outlines, it is full of bubbles. It was submitted to my laboratory by a dentist and was refused. If a plate had been made from this impression, it would simply have had to be made over again. The impression was taken in a flimsy pasteboard "sanitary" tray.



Porcelain Manipulation

A PRACTICAL TECHNIC FOR THE GENERAL PRACTITIONER

By F. R. FELCHER, D.D.S., Chicago, Ill.

XXIII

REPLACING DOWEL CROWNS WITH PORCELAIN JACKET CROWNS

The reader is requested not to misunderstand the purpose of this treatment of the subject of the detached post or dowel crown and the replacement of faulty dowel crowns as a condemnation of the use of dowel-crown restorations. Like all restorations that are properly placed, the dowel crown has served a useful purpose.

Many of the failures that are seen where dowel crowns are not properly applied and where recession of the tissue appears could have been overcome if, after the crown had been fitted to the root, the proper contour of the tooth, which tends to protect the tissues, had been replaced with baked porcelain. We frequently come across patients who are wearing poor-fitting dowel crowns, and the necessity arises for a replacement of a better nature. Here the porcelain jacket crown serves a useful purpose.

Described here also is the method for building up with a casting simulating prepared dentin in cases where teeth are so badly broken down that it becomes necessary to remove the coronal portion of the tooth completely, and a pin is used for retention of the casting. This procedure is the same as for cases where an old dowel crown has been removed.

There may be some instances where it will not be necessary to remove the dowel crown from the root, but where

the porcelain tooth can be trimmed to the necessary preparation for the jacket crown. This method requires considerably more time and is used where the removal of the dowel crown would present difficulties which preclude the necessity of its removal.



Fig. 64.

Root beveled to prevent the rotation of the core.

Aside from the cases described above, usually two methods for the preparation of the roots are used. One is the usual dowel-crown preparation, where the root is beveled so as to prevent the rotation of the core casting and the jacket crown (Fig. 64), and the other is the method used frequently by the author, a suggestion of Dr. A. E. Schneider's, where a shoulder is cut into the preparation, this shoulder being somewhat wider than the average shoulder for the preparation of a tooth for a jacket crown. A casting is then made which takes up a portion of the shoulder, leaving the remainder for the porcelain jacket crown (Fig. 65). This method tends to act as a banding arrangement for protection against

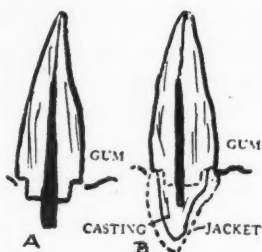


Fig. 65.

- A—Shoulder cut in the preparation.
B—Relative positions of core and jacket crown.

fracture of the root and is ideal in cases where leverage action of the pin in the root might be a cause of breakage. For this kind of preparation a wide end-cutting bur or a root file is used to cut the shoulder, carrying the shoulder a short way below the free margin of the gum (Figs. 66-67). As mentioned above, the shoulder should be wide enough to be covered by the casting and the jacket crown later. The impressions and bites are taken as follows:

Take a wire measurement of the root and fit a tube that will be quite snug. Have the tube short and so shaped that it can be removed from the impression to be taken later. Try to have the tube as nearly round as possible, as it is desirable that it should not rotate in the impression, but that it should be possible to remove it for packing the amalgam die. However, if the root is shaped so that the tube will be perfectly round, a piece may be cut out of the bottom which will guide in its replacement. This should be done before the impression of the prepared root is taken. The usual marking of the labial or buccal of the tube should be done on these cases.

Place a pin in the root, allowing it to extend long enough for attachment to a gold casting. Fill the tube with modeling compound, put a smear of vaseline or some lubricant over the modeling compound to prevent sticking to the root or the fingers, and take an impression of the prepared root. When it is certain that the impression is perfect, allow the tube to remain in place over the root and take an impression of the case with enough of the surrounding teeth reproduced. Then take

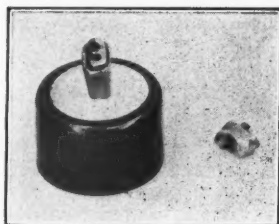


Fig. 66.

Preparation of a bicuspid.

the bite and the shade, and the case is ready for laboratory procedure.

First, remove the tube from the impression and vaseline or cover the



Fig. 67.

Preparation of a molar.

pin with a thin film of wax to protect it from the action of the mercury in the amalgam. Wind a piece of paper

around the tube so as to make a receptacle for the placement of the amalgam, and pack the amalgam die. The teeth adjoining the tooth to be replaced may be packed with some amalgam also at this time, small brads being embedded with heads down in the amalgam to secure these teeth in the model. When the amalgam is set, trim the die to a taper, being careful not to remove the die from the tube. Place a groove on the labial or buccal side of the die and replace the tube and die in the impression. Be sure that it goes into place firmly, after which it can be fastened with wax.

Lubricate the root and make a plaster model from the impression. Separate the tube from the die when the model is separated from the impression and then articulate the case. If the steps have been fully carried out, the case can be completed from the model.

The pin is removed from the die, cleaned and replaced, and a wax core

is made from inlay wax. This core should represent the proper preparation of a prepared jacket crown case for the particular tooth and its function for that case.

Cast the core, but do not polish, after which it may be replaced on the amalgam die. Fasten the casting in position on the die with a bit of sticky wax thinly applied on the pin.

Make the matrix in the usual manner and build the jacket crown to completion. By warming the casting a bit it can be removed easily from the die, which in turn can be cemented into the root of the patient. After this is set, cement the crown in position.

Cement the jacket crown with a cement which matches the gingival color of the tooth. If a good crown-and-bridge cement is used, there need be no fear of a gold core reflecting through to interfere with the color of the jacket crown.

7616 Phillips Avenue.



Orthodontic Principles for the Man In General Practice*

By RALPH P. HOWARTH, D.D.S., Cleveland, Ohio

The basic principles of orthodontia are the basic principles of all dentistry. A knowledge of growth processes is necessary before even a filling can safely be inserted in the teeth. We must know that every new stress is reflected in a new adaptation of the bone to that new force. To attain perfect occlusion of the teeth there must be normal bone growth, and here is where the general practitioner is of far more importance than the man who limits himself to orthodontia alone. The family dentist has it within his power not only to keep the mouth and teeth in a healthy condition but, through a knowledge of nature's ways, to aid at the psychological moment by a little stimulation or by the removal of an obstruction. Preventive service is of a higher order than curative service. But if, through one reason or another, the case passes beyond the preventive stage, we with our specialized knowledge are ready to do your bidding.

Let me say right here that I have absolutely no objections to the general practitioner doing orthodontia if only he will give to it the same study, time and thought that he gives to prosthetics or to operative dentistry. So many men think that if they once could fathom the mysteries of orthodontic appliances, they could move the teeth hither and yon to their correct posi-

tions. But in reality the mechanics involved are secondary to an understanding of the biological principles of growth. Therefore let us leave the mechanical end of the problem alone and see if we cannot arrive at a better understanding of nature's ways, because, after all, if we know what we want to accomplish, we can design an appliance to fit the case. Moreover, most of you are not interested in orthodontic appliances. You want to know of the things of orthodontia that are directly related to your work.

All dentistry is based on occlusion, therefore let us study it first. To understand occlusion we must think not of man alone but also of his predecessors and of the animal and piscatorial kingdoms. Occlusion is the coming in contact of the specialized organs of the mouth with the purpose of preparing the food for digestion. Dewey says: "We believe there has always been a tendency to confuse 'occlusion' with 'function' or to try to make occlusion some part of mastication. We consider occlusion as an anatomic condition, and because of that anatomic condition or arrangement certain functions are made possible. We would define occlusion as being the relation which the teeth of one arch bear to the teeth of the opposing arch."

Dewey continues: "In the study of malocclusion it is being recognized more and more that we can only classify and diagnose an abnormality

* Read before the Cleveland Dental Society, November 19, 1928.

when we base that classification upon two things, namely, the relation which the teeth of one arch bear to the teeth of the opposing arch, and also the relation that the teeth bear to the face and cranium."*

In certain of the fishes these specialized organs are nothing more than serrated ridges, and, as you know, in the carnivorous and herbivorous animals the teeth are again of entirely different forms. Anthropologists have shown that these organs vary and adapt themselves in size, form and number according to their function, or, in other words, these organs or teeth are constantly adapting themselves to their environment. Scientists, notably Dr. William K. Gregory of New York, have traced the development of the human teeth back to earliest man by means of cusp formation and through this evidence have established the relationship of a common ancestor with the monkey kingdom.

Gregory has pointed out that the canine teeth in man were once long, sharp-pointed fangs used for the purpose of defense and the tearing of food, and, as man has risen in the animal world through the use of his brain, these teeth have slowly adapted themselves to their present form.

In the ages long past man spread out over the face of the globe and formed into tribes. One tribe lived near the equator and had to adapt itself to the terrific heat of the sun and as a consequence developed a pigmented layer in the skin. It lived mostly on fruits and vegetables. An-

other tribe moved far away to the north, where it had to endure the intense cold and had only meat to eat. As the result of different climates and foods, these tribes developed different colors and different-shaped teeth. In other words, they are two distinct groups or races of man.

Type is the mean or average of a group. Characteristics common to the whole group are embodied in the typical, yet the typical may not be the same as any one of the group. For instance, we know that the Japanese as a race or group are of small stature. The average height might be five feet three inches, which would be typical, yet there might not be any individual of this race of this exact height. It seems to me that the difference between *typical* and *average* is that typical allows a variation each way, so that when we classify anything for the purpose of diagnosis it must have characteristics common to the type.

The meaning of the word *normal* comes within the concept of the word *type*. It is the standard or measuring stick with which the characteristics within the type are compared. Angle reasoned that "normal occlusion is that line with which in form and position, according to the type, the teeth must be in harmony." He was one of the first to be cognizant of the fact that the form of the tooth modified the curve of the arch, and also that such factors as the inherited shape of the head influenced the position of the teeth. Normal occlusion should be interpreted as the biologic ideal with which all other occlusions are to be compared. Yet we know that nature is never perfect, and that even the two

* International Journal of Orthodontia, May, 1924.

sides of the body are not identical. Leroy Johnson solves the problem by defining *normal* as the standard of function. He says: "Normal occlusion of the teeth is the condition of tooth relations that is most effective in maintaining and establishing in its most stable form the organization of the living being. Typical occlusion indicates in a general way the extent of variation of structural relations that in ordinary circumstances should be accepted as normal."*

In speaking of the classification of malocclusion Angle writes: "These classes are based on the mesio-distal relations of the teeth, dental arches and jaws, which depend primarily upon the positions mesio-distally assumed by the first permanent molars on their erupting and locking. Hence in diagnosing cases of malocclusion we must consider, first, the mesio-distal relations of the jaws and dental arches, as indicated by the relations of the lower first molars with the upper first molars—the keys to occlusion; and, second, the positions of the individual teeth, carefully noting their relations to the line of occlusion."** We assume that he took into consideration the fact that the first molars in either or both of the upper and lower jaws could have drifted through the loss or absence of adjacent teeth from their normal positions. Without a realization of this fact a correct diagnosis cannot be arrived at.

Another factor that comes to us through recent knowledge is that the relationship of either or both of the upper and lower arches is not constant

as related to the rest of the bones of the face and cranium. That is why Dewey added to his definition of occlusion. In some cases where the teeth are in a normal functional relationship it is perfectly possible and does happen that patients present themselves with both arches anterior or posterior to the relationship that would give a harmonious balance with the rest of the bones of the face and with the cranium. Whether this is an individual normal coming within the extremes of type I do not know, but I do know that it makes a nasty problem for the orthodontist, so that in a modern diagnosis of a malocclusion we have to take into consideration not only the functional relationship of the teeth and arches but also their esthetic relationship to the head as a whole.

Naturally before we can have a normal adult occlusion there must be growth. Growth is not a simple process of increase in size alone, but is a complicated development of cells of low degrees of differentiation into higher degrees for special purposes. A process such as this takes place after the fertilization of the ovum. There is a rapid increase in the number of the cells through division and then they start to differentiate into the three primary germ layers. These germ layers keep on differentiating into higher specialized cells until the various organs of the body are formed. Primarily growth takes place by increase in size and number, but growth must not be confused with form or shape. Change of form takes place by an exuberance of growth in one direction and a retardation in another, or there may be either an increase in

* *Basic Principles of Orthodontia, The Dental Cosmos*, 1923.

** *Malocclusion of the Teeth*.

the number of cells in one place or a decrease in another. The changes that take place in the maxilla and long bones are good examples of this. It is but nature's way of maintaining strength while keeping down the weight, for, as the bones increase in size as the result of function and their inherent qualities, new cells are added to the outside and there is a resorption of the central cavity. There are certain cells of a sufficiently low degree of differentiation, such as the nails and hair, that keep on growing even through senility. T. Wingate Todd has found that bone also keeps on growing until senility. This is an important discovery for us, because it explains the adaptability of the arches to prosthetic restorations.

Recently in orthodontic literature we have had two remarkable papers on growth. One was by Hellman,* in which he recounted the results of a series of measurements on a group of 78 American Indian skulls ranging in age from infancy to senility. These skulls were estimated to be over two thousand years old, so that present environmental conditions do not need to be taken into account. In the second paper, by Prof. James C. Brash** of England, practically the same results were reached after a series of experiments of feeding madder to growing pigs. Madder is a food substance which stains the new bone as it is laid down.

Hellman found that "there is an acceleration in the rate growth in height and width of the face at two

stages of development. The first and lesser is between infancy and childhood; the second and more accentuated from childhood to pubescence." Please allow me to quote also his summary, because it is so important and so applicable to our work. He says: "The facial changes depicted in this paper must not be understood to represent a complete statement of its development. They represent just a few of the many in which the face goes through the life cycle from the infant to the senile stage of development. These few ways consist of:

"1. Growth in height.

"This growth is attained by:

- "a. Moderate increase in dimension of the upper and lower face.
- "b. Greater increase in the subnasal area and lower molar region, really the alveolar process.
- "c. Development of the dentition, pushing, as it were, the upper and lower face apart.

"2. Growth in width.

"This growth is attained by:

- "a. Moderate increase in width in the median plane anteriorly.
- "b. Greatest increase in width in the lateral halves posteriorly, especially at the gonion.
- "c. Intermediate amounts of growth posteriorly ascending from the gonion and laterally between gonion and canine.

"3. Growth in depth.

* *International Journal of Orthodontia*, June, 1927.

** *Ibid.*, March, 1928.

"This growth is attained by:

"a. Increase in dimensions of facial structures in antero-posterior direction.

"b. The increment taking place at the posterior end of the structures concerned, palate and alveolar process of the maxilla above, and alveolar process, ramus and body of mandible below.

"c. The lower in position the structures are, the more rapidly they grow.

"4. Adjustment of facial positions.

"This is determined by measurements taken from a point on the cranium (external auditory meati) to certain anterior points of the face in the median line (nasion, prosthion and menton). These dimensions hitherto thought to measure growth are shown to measure position.

"5. Modification of the different angles.

"The angles are shown to change in an opposite direction to the other measurements, i.e., the other dimensions grow larger during development while the angles grow smaller in degrees. The traditional idea of the modification of the mandibular angle cannot be upheld.

"Notice that the face width increases the slowest, the face height more rapidly and the face depth the fastest."

To illustrate this latter point, Hellman says: "Suppose we take a face mask and hold it in a position as though it were on some one's face.

We then divide this mask in the middle vertically. If the two halves are then moved apart, it would illustrate the effect of the widening as it occurs in the growth process at the median plane. But if, in addition to the separation, the mask is also spread a bit more in the rear and this spreading further increased from below, it would convey an adequate idea of the picture of the entire event."

Theory in itself is of no value to mankind. It is only through the application of known facts that humanity can be benefited, therefore let us try to apply what we have learned. First of all, there is a most advantageous time for orthodontic interference, that is, when there is the most rapid growth. We have learned that the most rapid growth takes place between the periods of childhood and pubescence, which is between the ages of about five to fifteen. Unless the malocclusion is very severe, it generally is not wise to interfere until the sixth year because of the difficulty of obtaining the cooperation of the very small child. There is, however, a decided advantage in commencing treatment as soon after the sixth year as the malocclusion becomes apparent. In a great many of these young cases of lack of development a little mechanical stimulation is all that is necessary and then nature will do the rest. Where orthodontic interference is indicated this is the ideal method, yet conditions may be such that the processes of growth, over which we have very little control, are not normal and it may be found to be expedient to place appliances on the teeth again. As the result of the fact that tooth movement requires bone

growth and bone growth takes place even through senility, theoretically orthodontia can be performed at any time during life, although with less rapidity as bone growth slows up. Practically it is not advisable when retention becomes the big problem.

After the teeth and jaws have been moved to their correct positions as to their relations with each other and to the cranium, they must be held in these relations until the bones and muscles of the face adapt themselves to these new positions. Furthermore, it is only through a normal functioning of the teeth and jaws that the proper adaptation of the parts can take place. Hence it is paramount that the appliances used allow as much individual freedom of the teeth as possible. Normal functioning of the teeth and jaws is our goal and must ever be in our minds as our guiding principle. A great many of our cases relapse because a normal function has not been attained or maintained.

Naturally the cause must be removed in so far as we know how. In comparison we know very little about cause. Self-evident causes such as habits, adenoids and tonsils, nasal stenosis, deflection of teeth, supernumerary and lost or missing teeth can be overcome or provided for. But such causes as overgrowth and undergrowth due to a maladjustment of the glands of internal secretion, certain crowdings of the teeth in both arches, which Lundstrom of Sweden terms *an insufficiency of the apical base*, and in certain cases a malrelation of the size of the teeth to the size of the jaws, are greater than man's present knowledge and ability to control absolutely.

Tissue changes taking place through the mechanical force of an appliance should be the same as those that take place during the normal growth of the jaws. Histologically there is an absorption of the tooth socket in front of the movement and a building up of new bone in back of the movement, together with a new deposit of bone substance on the outer surface of the bone. Appliances should be used only as a means of applying the mechanical stimulation and not for the purpose of dragging the teeth through the bone. The teeth should be considered as pegs through which the stimulating force is transmitted to the bone. At the last meeting of the American Society of Orthodontists, Leroy Abbot, a surgeon, presented a paper which beautifully illustrated this point. He showed how they increased the length of the long bones of the leg by two horizontal cuts, one on each side of the leg and one below the other. Then the bone was split vertically. Into each side of the bone steel pegs were inserted on which an apparatus was placed for the purpose of sliding the horizontal cuts away from each other on the vertical split. The apparatus was tightened by degrees. The amount of new bone growth was measurable and was another proof that bone grows as the result of mechanical stimulation.

The proper amount of force required for tooth movement is the least amount of force capable of producing stimulation of bone growth. Any amount of force greater than that needed for stimulation produces irritation, and irritation produces pain. Therefore pain is an indication of too much force, which is antagonistic to

bone growth. Here again we must remember that no two human organisms react alike to stimulation. They vary as to the degree of force that each is able to assimilate, and the individual also varies in his reaction to applied force, depending on whether or not he is in a period of more rapid growth. This sentence is more easily understood if you will recall Hellman's conclusions on growth.

In moving teeth there is a certain sequence of tooth movements which is only logical when you stop to think of it. As a self-evident example, it would be utterly absurd to attempt to

bring down a cuspid tooth which had erupted labially and high up without first making room for it. Yet it is no more so than to attempt to bring the lower jaw forward without first widening the upper arch.

I do not wish to go into the subject of appliance manipulation just now, nor do I care what type of appliance is used. Good results can be obtained through the use of any one of three or four different kinds of appliance. It all depends on the operator's ability, and ability is the result of study and practice.

518 Union Building.



[ORTHODONTIA]

Orthodontia, even with its present insufficient knowledge of the biologic factors involved, has sold itself to the dental profession and the public, which is awake to the crying need of orthodontic service, and the orthodontist is attempting under almost insurmountable difficulties in many cases, to live up to his reputation and scientifically diagnose and treat malocclusions which are extreme in their type and which involve a complicated etiology. —PULLEN.

Oral Surgery In Practice

By JAMES L. ZEMSKY, D.D.S., New York, N. Y.

Attending Surgeon, Department of Oral Surgery; Chief of Clinic and Director, Surgical Periodontia Department, Midtown Hospital, New York.

(Continued from February)

SCARS

¶331. Disfiguration due to scar formation on the face and neck may at times be prevented through intra-oral rather than an extra-oral operation. (See Fig. 372.)



Fig. 372.

Photograph showing a scar that resulted from an operation for the removal of a growth in the region of the maxillary second molar and the buccal fold. (This operation was performed by a general surgeon in one of the European clinics.) This type of operation may be successfully performed intra-orally and thus such scars may be easily avoided. (See ¶331.)

¶332. Failure to remove all of a necrotic bone or an infected tooth which has started trouble is often the cause of a persistently discharging sinus and the formation of ugly scars. (See Figs. 373-374.)

¶333. Application of heat and poultices to a facial swelling is responsible in many cases for the breaking of the abscess externally and for subsequent scar formation. (See Figs. 375-376.)

¶334. Dressings and drains retained too long in a facial wound act as local irritants and cause the formation of redundant granulation tissue and consequently ugly scars. (See Fig. 377.)

¶335. The appearance on the face of funnel-shaped depressions caused by extra-oral incisions may occasionally be corrected by breaking up the adhesions. (See Figs. 377-378.)

¶336. In cases where suturing is permissible, skin incisions will heal almost without scar formation when the suture is taken deep beneath the skin, if the lips of the wound are well coaptated.

¶337. All patients dread scars on the face, hence everything possible should be done by the surgeon to prevent them. When they are unavoidable, he should see that they are as small and as little disfiguring as possible. (See Figs. 379-381.)

¶338. The operator must insist that an extra-oral incision be made as soon as necessary. He should not wait for the abscess to ripen, for it may then open of its own accord, and such opening generally is followed by the formation of an unsightly scar. (See Figs. 375-376.)



Fig. 373.

FISTULA DUE TO IMPACTION

Photograph of a patient, 61 years old, presenting a scar and a fistulous opening on the cheek. History indicates that the flow of pus was intermittent, and that, when the discharge stopped, the fistula closed for a while. Soon a swelling occurred and then pus usually made its appearance again. The patient had all the posterior teeth removed and the "bone scraped" several times. When the opening was explored with a probe, a hard, smooth surface was felt. The roentgenogram of this side of the jaw revealed the condition shown in Fig. 374. (See ¶332.)



Fig. 374.

Roentgenogram of the left side of the mandible of the patient presented in Fig. 373. It shows that the probe which was inserted into the fistula reached an unerupted and malposed tooth and indicates the connection between the opening and the unerupted tooth. Soon after the removal of this tooth the fistula closed. (See ¶332.)



Fig. 375.

Photograph of a patient, 21 years old, showing an unsightly scar on the cheek as the result of poultices and heat applications during the formation of an acute alveolar abscess. Cold applications during the acute stage and an early incision usually prevent formation of such ugly scars. (See ¶333, 338.)



Fig. 376.

Photograph of a girl, 13 years of age, whose face was poulticed during an abscess formation. This resulted in drawing the pus toward the skin. When it ruptured of its own accord, an ugly scar resulted. (See ¶333, 338.)



Fig. 377.

Photograph showing the characteristic scar formation following an incision for the purpose of draining pus in cases of acute infection (osteomyelitis). Such deformities are often more or less successfully operated upon by breaking up the adhesions. The results are similar to that shown in Fig. 378. (See ¶334-335, 340.)



Fig. 379.

Photograph showing a very large scar that followed an operation for resection of a part of the mandible. While in this instance an extra-oral incision was unavoidable, such a large incision is unnecessary. (See Figs. 380-381.) It should be remembered, however, that a great deal of surgery may be performed intra-orally and thereby prevent many deformities.



Fig. 378.

Photograph showing the result of operating upon a scar such as usually follows an extra-oral incision. The technic consists of making an intra-oral incision as nearly opposite the scar as possible and close to the bone, then inserting a blunt instrument and breaking up the adhesions. Packing the wound until it fills with granulation tissue is helpful. (See ¶335.)



Fig. 380.

Photograph showing the type of incision required for resection of the mandible.



Fig. 381.

Photograph of the same patient as in Fig. 380. Note the comparatively slight deformity following an extensive surgical operation. Compare with Fig. 379. When the incisions are not unnecessarily large, this is the usual appearance of a patient who has had to undergo such an operation. (See ¶337.)

¶339. The general condition of a patient is responsible in a great measure for the healing of wounds and the formation of scars. It is sometimes possible, therefore, to predict just what sort of healing will take place by questioning the patient and observing the type of other scars he may have. Such information is very essential, since it will enable the surgeon to determine

what may be expected, which is very important for both patient and operator.

¶340. While the patient's general state of health and any constitutional disease influence the healing of a wound, local conditions are most frequently responsible for it. In this connection two factors are very important: (1) mechanical irritants, and (2) local infection; hence they must be eliminated. (See Fig. 377.)

¶341. The best results are obtained when extra-oral incisions are made according to Kocher, i.e., in the direction of the natural cleavage of the skin, and not across it. This technic prevents the stretching of the scar, which usually occurs with the advance of age and results in an increase of the size of the scar and consequently in greater deformity.

¶342. The type of scar that remains red and continually increases in size is known as a *keloid scar*. While nothing can be done to prevent its formation, it is well to inform the patient of such a possibility, particularly when he already has such scars on other parts of the body.

355 East 149th Street.

(To be continued)



A Clean Tooth Never (?) Decays

By T. A. LEACH, D.D.S., Hutchinson, Kansas

The slogan *A Clean Tooth Never Decays*, without the interposed question-mark, has been the text for many an oral-hygiene sermon in clinics, schools, publications, on toothbrush handles and upon dentifrices. It has been taught by those whom we have trusted to possess the scientific facts. It is taught in our dental colleges, clinics and other institutions that too much importance cannot be placed upon oral hygiene as a prophylactic measure against caries. Oral hygiene is an important subject relative to health and esthetics. It is not the intention of this article to minimize the importance of oral hygiene. From the esthetic angle alone it is worth much more than the cost. But—does oral hygiene, as commonly implied, immunize the individual against decalcification of the dentin?

From observation we know that teeth in the mouths of those who observe the strictest prophylactic rules in the care of the teeth do decalcify. We know that, on the other hand, some of the most neglected teeth do not. Why? We know that the enamel and dentin will often start to decalcify and then become immune to further invasion of the decalcification; that the enamel, at first white to reflected light, turns brown and often almost black, becoming polished and resisting further decalcification. Noyes* states that "such spots will be found in some places

on most teeth extracted from immune persons." Dr. Miller has stated that "such spots are more resistant to the progress of caries than perfect enamel surfaces." Dr. Noyes further says that "at any time during the first period of decay the destruction may be arrested by the coming of immunity." The writer has observed this immunization to take place in the second period of destruction, viz., during the decalcification of the dentin.

We know that coincident with or as a sequence to certain debilitating diseases the teeth often suffer rapid decalcification, notwithstanding the prophylactic measures employed to avoid it. A microscopical study of a cross-section of the first period of caries shows a greater destruction of enamel at the dento-enamel junction than is presented upon the surface. Relative to this condition Dr. Noyes again says: "The decalcified dentin matrix shrinks and more or less of a space forms under the enamel." Something must have been removed to cause the matrix to shrink.

In another paragraph Dr. Noyes states: "The action of the acid follows the tubules of the dentin toward the pulp and spreads through their branches laterally near the dento-enamel junction, so that the form of the disintegrated dentin is always that of a cone, with the base at the dento-enamel junction and the apex toward the pulp chamber. It is important, however, to remember that *in this stage no microorganisms have entered the*

* *Dental Histology and Embryology*, by F. B. Noyes, B.A., D.D.S., Sc.D., F.A.C.D.

tissue, and the effect upon it is the result of the action of substances formed upon the surface."

In the third period of decay, or decalcification, which is after the actual cavity is apparent, Dr. Noyes states that "*the dentin is always decalcified in advance of the microorganisms.*" Dr. Percy Howe* states that "there is reason to believe that enamel is something more than a bundle of calcified rods glued together; that it has an organic matrix and probably some form of metabolism and can be reached from within; that it may be affected by serious nutritional deficiencies to such an extent that it may break down without attack from outside or cannot resist such an attack; and that it may be possible, by maintaining nutritional balance, to strengthen the enamel against attacks from without."

Where there are nerve fibers or filaments there must be a circulating fluid for nourishment. It is a fact that the dentinal tubules contain nerve filaments that reach to the dento-enamel junction. The lymph carries nourishment to and waste from the various cells of the body. May there not be a lymphatic system throughout the dentinal tubules? May not this lymph carry nourishment to the enamel and in certain debilitated conditions carry calcium away, and may this not account for the shrinkage in the first period of decalcification at the dento-enamel junction?

Dr. Howe** has proved that a deficiency of Vitamin C in the food of the

guinea-pig lessens the circulation in the dental pulp, causing a shrinkage away from the dentinal walls. If the circulation in the pulp be lessened, that in the tubules also must be inhibited. This in turn would affect the enamel at the dento-enamel junction.

In rachitic conditions there is a deficiency of Vitamin C. The parathyroid glands seem to underfunction and there is a destructive metabolism of the calcium salts. The bones of the body become more or less elastic and bend easily, hence the so-called *bow-legs* of those afflicted in early life. In cases of the underfunction of the pancreas or parathyroid glands there seems to be a metabolic disturbance of the acid-base equilibrium, together with a destructive metabolism of the calcium salts. Whenever this pathological condition exists, the enamel and alveolar process may suffer a decalcification.

In conditions whereby there is a metabolic disturbance of calcium assimilation, a constructive calcium metabolism must be produced through the stimulation of the endocrine glands. This seems best brought about through the administration of Vitamin C as contained in the uncooked vegetables and fruit and especially in cod-liver oil.

It has been the author's privilege to observe a number of cases of rachitic conditions in which the teeth were given the best hygienic attention and, notwithstanding this, they decalcified along the gingival border and interproximally.

One case presented of a young man whose teeth began to decalcify along the gingival border. White, opaque spots appeared at the gingival border

* THE DENTAL DIGEST, March, 1927.

** THE DENTAL DIGEST, June, 1927.

of the bicuspid and cuspid above and below. Cod-liver oil was prescribed in tablet form, and he immediately gained weight. The opaque patches disappeared in six months.

Another case was of a boy, six years of age. He was rachitic and the teeth carious. The six-year molars, which had been erupted less than a year, started to decalcify in the sulci. They were so sensitive that he would not permit a dentist to do anything to them. His physician prescribed cod-liver oil for his rachitic condition. He began to improve and finally developed into a strong man. About fifteen years later he consulted the essayist, and his six-year molars were found to be badly broken down from caries, but in the former carious areas they now presented a hard, dark brown, polished surface, where years before there was soft, leathery decay. Through receiving the necessary vitamin the dentin had become healthy and immune to further decalcification. Resolution seemed to have taken place, and the teeth became healthy. Gold-foil fillings were placed in all of the first molars without any devitalization. Twenty-five years have elapsed since the gold-foil was placed in them, and they have remained serviceable ever since without further decalcification, although he has continued the same

oral cleanliness as when a child, that of daily brushing his teeth.

Bottle-fed babies are more prone to decalcification of the teeth than are those which are breast-fed. Oral hygiene has nothing to do in these cases. It is altogether a case of the influence of the diet. During pregnancy and lactation the teeth of the mother frequently decalcify readily, especially along the gingival border. It is not because at this time she fails to observe cleanliness; it is because her system is called upon to furnish much more calcium and phosphorus to supply the demands of the growth of the child. If the mother eats foods containing the necessary vitamins, especially Vitamin C, her teeth will not suffer decalcification.

The time is not far distant when dental caries will be largely controlled by diet, fresh air and plenty of sunshine. It is not improbable that orthodontia may be largely eliminated by the same treatment. From the experiments of Dr. Howe* upon the development of the jaws of the monkey it would seem that the development of the jaws might be wholly controlled through the diet.

306 First National Building.

* THE DENTAL DIGEST, July, August, September, 1927.



Dental Judgment

By MONROE C. HAASE, D.D.S., San Diego, Cal.

Recently a patient said to me, "Doctor, I suppose you require the services of a dentist like the rest of us mortals."

I assented.

"Well," resumed the patient, "a dentist should certainly be able to select a capable man. What outstanding quality do you look for in choosing your own personal dentist?"

This conversation brought a question to mind. What is the most important professional quality that I prefer that my dentist should have?

I went down the line of dental qualifications. Must he excel in removing teeth, make perfect inlays or well-fitting, natural prosthetic restorations? Of course, I thought, all these depend on what service you would require in your mouth. But suppose you were in some place where there were no outstanding men in each of these individual lines of work, or suppose you preferred to have all of your dentistry done by the same practitioner. In such a case, which quality would be paramount?

I decided that it would be none of the specific branches of dentistry taught in our colleges today, but an intangible something that, for want of a better term, I will call *dental judgment*, the exercise of which will make for the success or failure of any dental operation—the ability to judge the characteristics and reactions of a patient in determining whether to make removable or fixed restorations. Many times I have seen perfect-fitting pieces

of removable dental work discarded by patients for the sole reason that they were nervous, high-strung and temperamentally unfit to wear anything with any movement in their mouths. On the other hand, there are times when, by close observation of a person, we can see by his reactions that a removable piece will be highly satisfactory and thus the operation of preparing sound and perfect teeth for abutments for fixed bridgework is eliminated.

Judgment in extracting—to figure whether the patient has the ability to withstand the extraction of a number of teeth at one operation, or whether it would be more advantageous to clear the mouth by degrees. The ordeal of having a great many teeth removed at one time cannot be withstood by certain persons and sometimes results in fearful shock. But there is the procrastinating person who, although well able to withstand the operation, always protests. In this case, if all the necessary extractions are not done at one appointment, they usually never will be done. The judgment of the dentist is brought into play in the advice given pertaining to the removal of certain classes of impacted and unerupted teeth.

The treatment of pyorrhea cases—to treat or not treat. What is the amount of good done if the cases are treated and the patient, despite our advice and warning, lapses again into the carelessness that caused the condition in the first place! Sometimes by close observation, conversation and past

experience we can be reasonably sure that a patient is of this type *before* we give treatment.

In operative dentistry—judgment as to the amount of biting stress a filling will have to withstand. This should influence the choice of filling material and also the general retention put into the cavity preparation. Judgment must be exercised as to the necessity of cement bases and cavity linings, dependent on the proximity of the pulp.

If we take a combination of psychology, close observation and experience, together with a generous amount of common sense, we have dental judgment.

Among the medical profession I have often heard the expression, "He has good surgical judgment." Why not "good dental judgment" as a mark of approbation in dentistry?

3916 Fifth Avenue.

The Care of the Hands

By J. ARTHUR DAVIS, D.D.S., Hammond, Ind.

In certain localities dentists have more or less difficulty in keeping their hands in proper condition. The necessity of having the hands of the dentist in good order is imperative to the dreams of success.

Many times we find the water in certain locations very hard and the use of plenty of soap is needed to break it. This is very bad for the skin of the hands and, unless great care is exercised, they will suffer therefrom. Then, in the daily routine of practice the finger-tips are contaminated with the corruption that lies around the necks of teeth diseased with oral infections such as pyorrhea or trench mouth (Vincent's infection). Sometimes we think that bathing the hands with soap and water after treating such cases is sufficient. It probably is with some, but not so with those whose hands are susceptible, and there must be other assistance administered.

The irritation of eczema of whatever

kind is very embarrassing to the professional man. There is the so-called *water eczema*, which comes with a rash of the most itching and burning nature, where the victim is forced to scratch or rub the affected part until a small pimple-like formation is raised which opens to discharge a watery serum that eliminates the cause of the itching. In the natural repair of the skin a troublesome scab forms, which drops off after the skin is healed. This condition will attack the finger-tips also, under and about the free margins and at the base of the nails. Above all things, a dentist does not want to have sore hands, sore finger-tips or eruptions on the skin.

I was bothered with the above-mentioned trouble for nearly three years and I tried everything that was suggested. I had a great number of prescriptions filled to check or cure it. I will give you the result of my long search with the idea that this may be

of great service to some one who has looked or still is looking for relief.

The course of treatment starts about a half-hour before retiring. Bathe the hands in hot (not scalding) water and scrub with a handbrush and good toilet soap to remove the soil from the skin. Clean thoroughly in and around the finger-tips and nails, and loosen the margin of the skin around the base of the nails with an orange-wood stick. Again use the handbrush and toilet soap and then soak the hands in hot, clean water. Dry on a towel (your towel, and not one to be used by others) and apply any good eczema ointment, using enough to allow an excess on, in and about the finger-tips

and around the base of the nails. Then put on a pair of canvas gloves and retire for the night. In the morning, wash the hands in hot water, using the handbrush and toilet soap freely, and then apply a solution of hypophosphite of soda (one teaspoonful to a pint of water) and allow the hands to dry in the air. After they are well dried, apply any good hand lotion, preferably of glycerine and rose water, as a finishing touch.

The hypophosphite of soda is the same that photographers use as a fixing solution and is a remedy to stop the itching in water eczema.

Panama Building.



[SYMMETRICAL CARIES]

The fact that very frequently new caries may be found on symmetrical places in both halves of the jaw may easily be explained by the fact that the symmetrical places are generally governed by conditions of simultaneous eruption, and temporary disturbances in the degree of hornification simultaneously strike places of the same eruption period.—GOTTLIEB.

Resolution of the Commission for Scientific Research of the Fédération Dentaire Internationale Adopted by the Executive Council In Session at Cologne, 1928

(Editor's Note.—This resolution, which appeared in the December (1928) issue of *THE DENTAL DIGEST*, is reprinted at the request of Dr. Bernhard Gottlieb, President of the Commission for Scientific Research of the Fédération Dentaire Internationale, in the hope that it will attract the attention and the interest of our readers and lead to a serious participation in the problem of root-canal treatment. Entirely aside from the medal, the prize money and the prestige that will accrue to the winner, the contribution to the profession and to the public should spur every dentist who is qualified for the work to enter this contest, in which every one will benefit.—L. W. D.)

Despite the fact that donations for the prize for dental research into the treatment of root canals have amounted to only \$1,100, the Scientific Commission of the Fédération Dentaire Internationale is of the opinion that the prize should be offered under the auspices of the F. D. I. and begs to propose the following conditions controlling its award to the Executive of the F. D. I.

INTERNATIONAL DENTAL FEDERATION DENTAL RESEARCH PRIZE

The F. D. I., in consideration of the importance of the problem of root-canal treatment and the necessity of obtaining a technic which will render pulpless teeth free from danger to the health of the individual, desires to promote laboratory and clinical research in this field by offering a prize. The prize will consist of a gold medal, together with the sum of one thousand dollars (\$1,000), and will be awarded at the next International Congress in

Paris in 1931. Candidates must notify the Secretary of the Scientific Commission of the F. D. I., Dr. J. Weinmann, Frankgasse 1, Vienna (IX), Austria, before July 1, 1929, of their intention to enter for the prize.

Each candidate must submit a description of his method in one of the Congress languages (English, French, German, Spanish), together with a record of ten treated cases to the same Secretary before July, 1930, through his own National Committee of the F. D. I., or that of a neighboring country. Of these ten cases, at least three must involve extraction of the living pulp (of which at least one must be a premolar and one a molar tooth), and at least three must be gangrenous pulps (of which again one is to be premolar and one a molar tooth).

The case records must be accompanied by all available evidence of the efficiency of the method, and the responsibility for furnishing this evidence lies with the candidate. Radiological evidence alone cannot be accepted. The Commission for Scientific Research of the F. D. I. considers the biological method to be the most efficient at present available. The candidate is, however, at liberty to control his technic by this or any other adequate method. The jury similarly reserves to itself the right to control any technic submitted by this biological

method or by any other which they may consider adequate.

It is desirable that at least two of the ten treated teeth should remain in the mouth as long as possible after treatment is completed, in order to furnish clinical evidence in support of this biological control.

The jury consists of the President of the F. D. I., Prof. L. Aschoff, Freiburg, i.B., Germany; Prof. Laidlow, London; Dr. Percy R. Howe, Boston, Mass.; Dr. E. Rosenow, Rochester, Minn. The President of the F. D. I. may appoint a substitute in the event of a vacancy in this list.

The following histological laboratories are prepared to undertake the biological tests for those unable to do the work themselves, charging only the actual laboratory expenses of the investigations to the candidates:

Zahnärztliches Institut der Universität Breslau,

Burgfeld 17-19, Breslau.

Dental Department, Loyola University, 1747 Harrison St., Chicago, Ill., U. S. A.

The John Hampton Hale Research Laboratory of the Royal Dental Hospital and School of Dental Surgery, Leicester Square, London.

Histologisches Laboratorium des Zahnärztliches Institutes der Wiener Universität, Wehringerstrass, 25A, Vienna (IX).

A subcommittee of the Commission for Scientific Research of the F. D. I. will be appointed at the meeting in 1929 to scrutinize the papers submitted, in order to see that the rules have been observed by the candidates.

The biological control of methods for root-canal treatment is as follows:

Use teeth which are destined for extraction. After doing the root-canal work, the teeth are extracted in a sterile manner. After giving an anesthetic, the pocket around the tooth is scarified by the actual cautery, whereupon the tooth and the surrounding tissue are painted with iodine. The tooth is then extracted; with sterile forceps and with a sterile splitting forceps the apical third of the root is cut off. During this last operation sterile cotton wool is kept around the beaks of the forceps and the tooth to prevent dropping the apex. The apex is then implanted into the leg muscles of a rat under strictly aseptic conditions; the best side is close to the femur. The wound is then closed by double suture (muscle and skin suture).

The weight of the rat is charted and the animal is well fed and kept under good hygienic conditions. During this time the rat should put on weight each week. After six months the rat is killed. The specimen is fixed in 5% formalin, imbedded in celloidin after decalcification and then cut. X-rays are used to determine the position of the apex in the tissues. Serial sections are prepared from the implanted apex, together with the surrounding muscles. It is important to get the axis of the root canal in the plane of the section. The series should be as complete as possible to be able to follow canal ramifications, if present. The degree of or absence of

inflammation around the root apex in the tissues of the rat constitutes the required control.

Further details may be obtained

from the histological laboratory of the Dental School of the University of Vienna, Turkenstrasse 15, Vienna (IX), Austria.

Victor Hugo Jackson, M.A., M.D., D.D.S., F.A.C.D.

1850-1929

Following a brief illness, Victor Hugo Jackson, Clinical Professor of Orthodontia at New York University, passed away on January 26, 1929.

The New York University College of Dentistry mourns the loss of Dr. Jackson as an esteemed member of its faculty and one of its outstanding characters. A pioneer in his field, an authority of international recognition, he has given much to orthodontia and to the profession at large.

Dr. Jackson was born in Arcade, N. Y., in 1850. He received his dental and medical degrees from the University of Michigan. He began dental practice in New York in 1879 and soon became deeply interested in the subject of orthodontia. Carrying on exhaustive and persistent studies, he had devoted his time to this science as a specialty since 1911.

Dr. Jackson is the author of books on orthodontia and orthopedia of the face. The appliances which he devised and the principles which he practiced

became the property of the profession and made his name famous on two continents.

At Buffalo University, where there is dedicated in his name the Victor Hugo Jackson Clinic of Oral Surgery, he was Professor Emeritus. He was Lecturer on Orthodontia at Forsyth Dental Infirmary in Boston and during recent years was Clinical Professor at New York University College of Dentistry.

Dr. Jackson belonged to many scientific, social and civic organizations. He was a member of the District, State and National dental and orthodontic societies. As friend and teacher he leaves behind a host of admirers. He has been and will continue to be an inspiration to those who carry on his work.

For the Faculty of New York University School of Dentistry,

EDWARD M. GRIFFIN,
EGON NEUSTADT,
ABRAHAM LEES.

Chicago Dental Society

SIXTY-FIFTH ANNUAL MEETING

With an attendance of more than 12,000 dentists from all sections of the United States and many from foreign countries the sixty-fifth annual Midwinter Meeting and Clinic of the Chicago Dental Society, held at the Stevens Hotel, Chicago, January 14-16, 1929, was considered the most important dental gathering ever held, veteran dentists declared.

Oral hygiene, embracing all classes of population from the tiny tots to aged grandparents, was the theme-subject of the great conclave on which dental experts conducted numerous clinics and symposiums. Public health also came in for its share of attention, care of the teeth being stressed by all speakers. Preventive rather than curative dentistry evidently is the aim of all dentists, and, as a means of furthering this aim, the Chicago Dental Society advocates the establishment of pre-school-age dental clinics. Statistics reveal that 84% of all children examined between the ages of three and four indicate the start of dental caries. By "catching" them while still in the infant state dentists believe that they can prevent most of the dental problems of the nation.

More than 150 clinics and exhibits were running full blast during the three-day meeting, and the latest and

most modern advancements in dentistry were explained and displayed to the large number of dentists in attendance. Internationally known dental authorities led in the numerous discussions of dental perplexities, many of which were solved in the numerous forums each day.

"This year's meeting undoubtedly was the most productive of worth-while results ever held by the Chicago Dental Society," declared Dr. Dan U. Cameron, chairman of the Press Committee and one of Chicago's leading dental practitioners. "Already we are making tentative plans for next year's gathering, which, we hope, will even eclipse that of 1929. Our aim next year will be 15,000 dentists present, and despite the loss of three days from practice the benefits derived are of inestimable value not only to the dentists of the world but to the public as well."

All committees for the 1929 meeting of the Chicago Dental Society were under the direction of Dr. Louis Jelinek, president of the organization. Dr. Jelinek, who is one of Chicago's foremost dentists, also presided at the annual banquet held on Tuesday evening, January 15, when 2,500 dentists assembled for their annual get-together at the table.



The New Dental School at the School of Medicine and Pharmacy of Port-Au-Prince

That dentistry must be practically taught has been recognized by the leading scientific men both medical and dental, and that is why no stone has been left unturned in the modeling of the New Dental School at the National School of Medicine and Pharmacy, Port-au-Prince, Haiti.

It is the aim of the school so to conduct its educational work that the young men who comply with its courses leading to the degree of D.D.S. shall be thoroughly impressed with the scientific principles forming the basis for an intelligent and skillful practice.

Advantageously located in a most beautiful building of modern architecture recently erected in the southern part of the city for the School of Medicine and Pharmacy, the Department of Dentistry is an integral part of the school, where the dental students enjoy all privileges accorded to students of medicine and pharmacy.

A carefully studied curriculum gives the students great advantages and opportunities, both theoretical and practical. The advantages for training the students in the actual practice of the varied operative and mechanical procedures are excellent, as many

patients will be provided from the various public schools.

The students are provided with a fine library offering facilities never before dreamed of.

The qualifications for admission are in accordance with that of all recognized colleges, and the course is of four years' duration.

The most modern equipment has been installed. Electric engines, fountain cuspidors, sterilizers, and dental chairs of the latest models afford every advantage for the operating room. Besides, new scientific apparatus has been added to the chemical and histological laboratories, and the mechanical laboratory has individual motors for grinding and electric lathes of the latest patterns.

One thing of great importance stands out, that is, the oral hygiene work, which the school intends to push for the benefit of the public schools and the population in general.

Instruction is provided by the members of the medical and dental staffs, some of whom are Jules Thebaud, D.D.S., M.S.; Marcel Dartiguenave, D.D.S.; and S. E. A. Daniel, D.D.S.



DIGESTS

INDIVIDUAL MOUTH RECORDS

By ELMER W. BRUCE, D.D.S.

Since no two patients have the same anatomic structure or mandibular movements, then each individual must have his own peculiarities developed through habit or misfortune.

Functional centric occlusion should be established first and then the directional movements of the mandible should be secured. Dentures conforming to existing conditions may then be constructed. The decision to restore normal conditions or only to make a partial correction will depend to some degree on the patient's age, mental attitude, habits, environment, and functional and esthetic desires. Locked occlusion must be absolutely avoided in all cases.

The general practitioner can construct successful dentures, but they cannot be built to one standard or by an average formula. The dentures must conform to the requirements of the individual patient. Technics in the past have been too exacting and a simple technic is greatly needed. The lateral check-bite seems to be the chief stumbling-block, and it can be eliminated if the occlusal surfaces of the teeth are milled and ground so that as wide a range of lateral movement is obtained as is consistent with efficient mastication.—*The Journal of the American Dental Association*, January, 1929.

SILICATES

By E. J. C. SMITH, D.D.S.

Probably no filling material is more abused than the silicates, and this does not except amalgam. At present there is no perfect filling material. Those that look best are weak or brittle, while those that are more permanent do not look well. In varying degree all are thermal conductors. The gold inlay is best for compound restorations in bicuspid and molars; amalgam is the most practical for occlusal cavities in third molars; and the best grade of silicate is equally serviceable in a large class of cavities, particularly the proximal surfaces of the six anterior teeth.

When silicates have been subjected by the profession to the same amount of research work as have other filling materials, a technic will be developed that will make this material satisfactory.

Absolute dryness of the cavity is necessary and conditions must be such that matrix pressure can be maintained during the initial set. Celluloid is the best material for matrices. No silicate made from carefully selected materials and properly handled will cause the death of a pulp.

The mix must be completed in not over a minute and a half and must be neither too thick nor too thin. The cavity is filled to a slight excess, and pressure is applied for three minutes. This is the most important step in the

whole procedure. If possible, finishing should be postponed to a later appointment. Until that time the filling should be protected from moisture by varnish.—*The Journal of the American Dental Association*, January, 1929.

BROKEN NEEDLES IN MANDIBULAR INJECTIONS

By BORIS LEVITT, D.D.S.

The author presents a criticism of a paper written by Theodor Blum of New York entitled *A Report of One Hundred Cases of Hypodermic Needles Broken During the Administration of Oral Local Anesthesia*.

Levitt states that the reason for the breakage is not a faulty execution of the Fischer technic nor the use of thin needles, but rather the technic itself. Contact with the internal surface of the ramus is not only unnecessary but dangerous.

According to the technic advocated by Levitt, the syringe is rested on the first bicuspid of the opposite side and the needle is inserted in the depression in the mucous membrane just external to the pterygomandibular ligament. The needle is carried in a straight line to the depth of one inch, and $1\frac{1}{2}$ c.c. are deposited. The needle is withdrawn a half inch and the remainder of the solution is injected. This anesthetizes the lingual nerve.

Blum states that of the needles broken in a mandibular injection 93 were thin and three were thick. Levitt says that this statement is misleading because more thin needles than thick are used. A needle that is not corroded will not break if it is handled properly, no matter how thin it is. Needles should be discarded after each injection, and the Fischer technic for mandibular injections should not be used.—*The Dental Cosmos*, January, 1929.

Foreign Dental Literature

LOCALIZED ACTINOTHERAPY

By LOUIS C. BARAIL, Paris, France

The author uses two sources of therapeutic light rays. The first is the high-frequency rays, employed as artificial sunlight for general radiations. This is used in rachitic tooth development and also for regional radiation and finds its application when an erythema is desired so as to diminish the pain in pericementitis and abscessed conditions. The other source of light rays is ultra-violet rays, which are employed in local and localized areas.

Their therapeutical action is through the red, infra-red and the ultra-violet rays, which have a bacterial as well as an analgesic action and therefore are used in the treatment of wounds, infections and inflammatory lesions such as stomatitis, difficult eruptions of the third molar, etc., and the author says they are beneficial also in relieving trismus.

He recommends the use of the high-frequency and ultra-violet rays and also the use of antiseptic solutions such as peroxide of hydrogen, Dakin's solution, etc., at the same time, so as to

make use of the respective therapeutical actions upon the blood-vessels, the nervous system, and the bacteriocidal properties of the rays. The antiseptic solutions are to be used in the infected wounds and infectious lesions after the electric treatments in order to emphasize their action.—*L'Odontologie*, Paris, 1926; *Revue Dentaire d'Electrologie*, Paris, 1927.

THE TROPHO-MICROBIC THEORY OF DENTAL CARIES

By CARLOS CANÉ, Buenos Aires

Dr. Cané says that the tropho-microbic theory of dental caries etiology has been prompted by the fact that in the light of modern investigations we cannot consider enamel as a passive tissue. From the investigations of von Ebner, Bodecker and Morgenstern there is no doubt that enamel has organic tissue, and, according to Adloff, since this is a living tissue, its functioning cannot be limited to a mere mechanical one, but physiologically it must perform the same metabolic functions in a manner similar to any other living tissue. Beretta observes that the frequent occurrence of caries in excellent teeth in mouths with the worst hygienic conditions, as also in those with perfect hygienic conditions; the different predispositions toward caries according to age; the symmetry in certain classes of caries; the immunity shown in denuded, abraded and eroded teeth, where the dentin has been laid bare; the appearance of caries at certain ages, and the variability in the course of this disease at different moments, etc., all must be taken into consideration.

It has also been observed that the lactic acid developed in the cavity of the mouth combines more easily with the salts suspended in saliva than with such a tissue as the enamel, which is a highly resistant tissue to its attack. So, with all these facts on hand, the author, according to Beretta, thinks the pathogenesis of caries to be the issue of two factors: (1) an internal one in the form of caries modification of the enamel influenced by the metabolism of this tissue, and (2) an external factor represented by the microorganisms presenting themselves in the areas where a lack of function exists.—*La Tribuna Odontologica*, Buenos Aires, 1928.

TECHNICS AND METHODS IN THE PRACTICE OF STOMATOLOGY

By R. DUCHANGE, Paris, France

To avoid nausea in patients when taking impressions for upper plates, Dr. Duchange recommends five methods:

1. Have the patient hold small pieces of ice in the mouth for some time.
2. Spray with ethyl chlorid, which, however, has the inconvenience of causing an increase in the flow from the salivary glands.
3. Swab with a solution of cocain. This does not generally go far enough posteriorly to reach the base of the sensitive spots.
4. Menthol lozenges, which have no practical anesthetic quality.

5. Stovain (novocain) lozenges compounded as follows:

R Stovain or novocain

2 milligrams

Saccharin—Gum arabic q. s.

The two last-mentioned substances act as flavoring and binding agents, and at the same time the gum sticks to the mucous membranes, holding the anesthetic for some time precisely over the reflex zone.—*Revue de Stomatologie*, Paris, 1926.

ANTAGONISM BETWEEN DENTAL CARIES AND PYORRHEA

By LOUIS IMBERT

The antagonism existing between these two oral affections, dental caries and pyorrhea alveolaris, has been observed for a long time in a more or less degree. In the '80's Magitôt maintained that it was partly due to the greater and denser ossification (he called it mineralization) that the teeth were made more susceptible to pyorrhea. He noticed that white teeth with transparent bluish enamel were susceptible to caries and were also the result of thyroid deficiency, while the yellowish-tinted teeth showed a marked predisposition to pyorrhea, which in turn is due to hyperthyroidism.—*Le Scalpel*, Liège, 1928.

THE ACTUAL LIMITS OF OPERATIVE ASEPSIS

By E. MARQUIS

The first road of infection of the operative regions is through the air from the mouth of the operator when expiring air in the act of respiration

and through the pulverized saliva carried into the air by the act of speaking—droplet infection—and these always contain virulent streptococci. Therefore during any operation respiration through the mouth should be avoided and absolute silence is necessary.

The second road of infection is through the hands, which should be disinfected with 90% alcohol, and the rubber gloves used should be thoroughly sterilized.

The third danger is the skin and the mucosa of the field operated upon, which should be disinfected by means of tincture of iodine and should always be covered with sterilized gauze.—*La Presse Medicale*, Paris, 1928.

CALCIUM CHLORID IN COCAIN INTOXICATION

By M. PAVONE

In two cases, in the first of which a local application of cocaine was used, the antagonistic action of calcium chlorid was shown. The second case had a special interest. The patient, to whom 2 c.c. of cocaine had been given, developed acute intoxication symptoms. A 10 c.c. intravenous injection of a 20% solution of calcium chlorid was used and afterward a caffeine injection was made. A few minutes later the patient began to improve and fifteen minutes afterward the toxic phenomenon had almost disappeared.

The use of this treatment was due to the results obtained from experiments on guinea-pigs, which showed that calcium chlorid was capable of abolishing the convulsive action of twice the lethal dose of cocaine in this

animal, notwithstanding the fact that the large calcium chlorid doses employed to produce this antagonistic effect, in proportion to its weight, are fatal to the guinea-pig, which is extremely susceptible to this salt.—*La Riforma Medica*, Naples, 1927.

TREATMENT OF LINGUA NIGRA BY IODIN

By ADALBERTO PEREIRA DA CAMERA, Porto Alegre, Brazil

The different theories on the etiology of lingua nigra are hypertrophy of the epithelial layer, microphytes, local dystrophy, telangiectasis of the corium, and the parasitic theory is *Aspergillus niger*—the glossophyte coccus.

The therapeutic measures of scraping and cauterization are considered useless and dangerous.

Having had excellent results in the use of iodine in the early stages of inflammation of the mucous membrane of the mouth and knowing the specific action of this drug on the various mycoses, the author applied it in the treatment of this aspergillosis.

He says that in Porto Alegre, Brazil, lingua nigra is very rare. His first case was in 1918 in a medical student who, knowing the benignity of the disease, did not pay much attention to it, and without proper treatment it disappeared spontaneously four months later.

The second case was a young lady, 18 years of age, with a good, vigorous constitution. This was the first case in which he employed iodine in the form of an application of a solution of sodium iodide and peroxide of hydro-

gen. According to Binz, iodine is liberated by the alkaline iodides in the presence of protoplasm and of carbonic acid, and also in the presence of oxygen. Eleven applications were made, one every other day. Healing took effect in a slow but certain manner twenty-six days after the appearance of the black pigmentation.

In the same year in a 17-year-old girl, also of excellent constitution, he saw his third case. Five days after the appearance of the pigmentation she was subjected to the same treatment, which was continued for only five applications. The only symptom in both cases was the pigmentation, there being no other inconvenience.

His fourth and last case was in a man, 27 years of age. Here fourteen applications had been made, when the patient was obliged to leave the city and was advised to continue the treatment himself. He communicated afterward that a few days after he left the affection was cured.

Up to the present no reappearance of the disease has been reported in any of the cases. In none of the cases was loss of function observed, and the gustatory sensibility was normal. No bacteriologic investigation was made in any of the cases.—*Revista Odontologica*, Porto Alegre, 1928.

MEDICAL EXAMINATION OF THIRTY THOUSAND MUMMIES

By ARNOLD SACH, Heidelberg, Germany

Sach has examined thirty thousand mummies dating back from 3000 to 6000 years B. C. and has found that

the lower class of people had perfect teeth, while the mummies of kings and of the well-to-do had some caries and also tartar. These conditions were aggravated in the most recent specimens, making it conclusive that refinement of habits and civilization as it has advanced has always had a great influence upon the percentage of carious teeth.—*La Presse Dentaire*, Paris, 1927.

NOVOCAIN-ADRENALIN SOLUTIONS IN LOCAL ANESTHESIA

By H. LANGECKER

In his investigations Langecker comes to the conclusion that the solu-

tions that change color should not be used in injections on account of their toxicity. Adrenalin is the oxidizing agent. He has found that the novocain salt is not to be blamed, but that in this discolored state it increases the reaction of the body to the toxic action of the altered adrenalin. This is also the case when cocain is placed in contact with altered adrenalin.

He recommends, therefore, that any discolored (yellowish) or old solution, even if not discolored, containing adrenalin should not be used.

Potassium chlorid used to enhance the anesthetic power of the solutions precipitates their discoloration.—*Deutsche Medizinische Wochenschrift*, Leipzig, 1927.



PRACTICAL HINTS

THIS DEPARTMENT IS NOW BEING CONDUCTED FROM THE OFFICE OF THE DENTAL DIGEST. TO AVOID UNNECESSARY DELAYS, HINTS, QUESTIONS AND ANSWERS SHOULD BE ADDRESSED TO EDITOR PRACTICAL HINTS, THE DENTAL DIGEST, 220 WEST 42D STREET, NEW YORK, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

MERCUROCHROME.—I note in the January issue of THE DENTAL DIGEST the experience that H. G. B. has had with mercurochrome upon superficial wounds.

A short time ago, in conversation with a friendly physician, he gave me his opinion of the use of this drug, which was this: it is useful and beneficial upon mucous membranes, but upon the skin it causes very slow healing and is a deterrent rather than a healing remedy, and he has discarded its use on skin surfaces. I value the opinion of this physician and believe his experience does not differ from that of H. G. B.

I. R. B., D.M.D.

HOWE TREATMENT.—I have read the inquiry of F. J. R. in your November, 1928, issue in regard to the silver nitrate solution.

A very fine precipitate can be obtained by the use of oil of cloves instead of the formalin, and it is soothing instead of irritating, as in the case of formalin. I have used this treatment for the sensitive occlusal surfaces of abraded molars.

Dry the teeth and first apply the ammoniacal silver nitrate with a dropper and immediately follow with the oil of cloves. Let it remain from two to three minutes usually. The effect will last from several months to a year.

J. H. S.

Editor, Practical Hints:

I have a patient who has a bleeding of the gums between the teeth in four places. The gums are of a purple hue. I have used a number of remedies, but so far have been unable to cure them. There are no fillings to irritate the tissues. One place is very bad with hypertrophied tissue.

F. B.

ANSWER.—The teeth should be carefully scaled and all tartar removed. A careful examination should be made for cavities, and, if possible, x-rays should be taken of the affected areas.

A very good treatment is to make a thick paste of the chemically pure sodium perborate with water and apply it to the gum, working it in between the teeth. This should remain for about five minutes and then be

rinsed off with warm water. This treatment once a day for three or four days should bring about a marked improvement, if not a complete cure.

Editor, Practical Hints:

I extracted all the remaining lower teeth for a patient about 50 years of age and placed a lower vulcanite denture (temporary). The teeth were extracted three months ago and the plate fitted a week later, not a very good-fitting denture but something to tide her over until she can have a permanent denture. She wears it only when she goes out, because it does not fit very well.

About a month ago a hard lump started forming in the cheek on the left side about opposite the second molar, and now another is forming on the right side in the same region. One can be felt with the finger and thumb on the outside of the cheek and the other on the inside. There is no pain.

I should like to know what this is, as I have never seen anything like it before.

I should like to know also how to remove teeth from an old vulcanite denture.

M. R. C.

ANSWER.—If the lumps are caused by the dentures, then doubtless the only reason is that she is unconsciously biting her cheek. It would hardly seem that this could be painless.

To remove teeth from a vulcanite plate, fill the bottom half of an old flask with any dry, coarse investment material. Set the plate in this with the teeth down and heat with a low, slow flame, so that the rubber will be

softened but not burned. When the exact temperature has been reached, the teeth can be easily pushed off with a pointed instrument.

Editor, Practical Hints:

I have two patients whose teeth, I find, have been and are still being ground down too rapidly. The history in both cases gives a condition of grinding the teeth at night. One case is a mouth-breather.

I should appreciate any information that you might give me as to the treatment in such cases.

A. A. F.

ANSWER.—Grinding the teeth at night is almost invariably a sign of a nervous disorder, and the case should be referred to a physician. It is very seldom that anything can be done from a dental standpoint.

Editor, Practical Hints:

What causes an orange-yellow sediment to gather around the necks and lower portions of the teeth? Is there a treatment that stops it?

F. E. H.

ANSWER.—The orange-yellow sediment around the necks of the teeth is tartar. This varies in color—orange, black, yellow or white, etc.—according to the constitutional characteristics of the individual.

The formation of tartar may be decreased by materially reducing the total amount of food eaten and increasing the proportion of roughage, that is, lettuce, celery, fruits and vegetables. Substitute whole wheat for white flour and reduce to a minimum

the amount of heavy carbohydrate and proteid foods, such as meats, bread, cakes, etc.

Editor, Practical Hints:

Please give me the best technic in your opinion for the construction of full dentures when a patient does not wish to wait for proper resorption after extraction.

Do you advise taking impressions before extracting, or how long after? In taking impressions before extracting, what impression material would be your choice?

J. W. J.

ANSWER.—It does not matter what technic is used when a denture is made for a patient soon after extraction. The denture will have to be rebased or made over on account of the resorption.

In the January number of THE DENTAL DIGEST appears an article on *Immediate Denture Service* which, I think, will answer all your questions on the subject.

Editor, Practical Hints:

How should artificial dentures be constructed so as to eliminate the possibility of lisping? —G. F. L.

ANSWER.—Lisping is not an unusual occurrence when dentures are first inserted and is generally overcome as the patient becomes accustomed to them. Making the upper denture as thin as possible will be of material assistance, as will also the reproduction of the natural rugae.

Editor, Practical Hints:

A patient has been referred to me

with the following diagnosis by a physician:

"I am convinced that the unusual amount of amalgam in her mouth is giving rise to some chronic low-grade mercury symptoms. Remove all amalgam fillings and place gold inlays."

The patient is about 50 years of age, the x-ray shows her teeth to be all right, and they respond normally to electric pulp test. There are perhaps some eight large amalgam fillings, in good shape apparently.

I should appreciate your opinion as to the possibility or probability of this.

C. H. R.

ANSWER.—The homeopathic school of medicine has always said that mercury can be absorbed from amalgam fillings, but no definite proof has ever been shown that this has occurred. At present there is an agitation in Germany in regard to the same question.

The best thing to do would be to remove the amalgam fillings and put in gold inlays.

Editor, Practical Hints:

If novocain is accidentally injected into the buccinator muscle while making a tuberosity injection, it is immediately followed by an acute swelling. After a period of approximately twenty-four hours an ecchymosis appears on the skin of the cheek. This discoloration has varied in the three cases which I have experienced from a brownish tinge in the complexion to a small black spot and to a black discoloration of the entire cheek. What is the explanation?

H. E. R.

ANSWER.—The ecchymosis is due not to the novocain but to the puncturing of a blood-vessel and consequent infiltration into the surrounding parts. The size of the area affected depends to a large extent on the size of the blood-vessel that has been punctured.

The color will vary with the amount of blood, its characteristics and the peculiarities of the particular individual.

and this is probably the only practical method.

Editor, Practical Hints:

I have a male patient, about 45 years of age, wearing full upper and lower dentures. He has tried an upper denture with roof and is now wearing one that has most of the roof cut out. The dentures fit well and he has no trouble in retaining them. He can masticate well, but says that when he finishes a meal or tries to talk or drink water he begins to gag or becomes nauseated and has to remove the dentures.

Can you suggest any remedy for this condition? He has worn dentures for over a year.

W. G. B.

Editor, Practical Hints:

Can you give me a proved formula for a separating medium for plaster impressions and stone casts that does not leave a coating on the impression?

J. C. S.

ANSWER.—It takes so long for stone to set that unless there is a definite separating medium the cast will lose some of its water of crystallization. The manufacturers recommend a thorough coating of sandarac and varnish,

ANSWER.—It would seem best in this case to make a denture that extends back onto the soft palate and is post-dammed sufficiently so that contact over the whole border is constantly maintained.





DENTAL ECONOMICS

Bridging the Gap Between "Services Rendered" and "Thanks for Your Check"

By CARLETON CLEVELAND, D.D.S., Highland Park, Illinois

Ever has the collection of accounts been a difficult and trying problem. It is a problem that confronts alike the business man and the man who practices a profession. An unpaid bill may become a veritable poison or a thorn in the side of any commercial relation. Its presence breeds contempt in the minds of both creditor and debtor.

There seems to be a sort of false pride on the part of many members of the dental profession when it comes to asking a patient for the settlement of a just debt. Often there is a hesitation almost akin to fear to ask for money that is long overdue. The thought seems to be that a patient may think that the dentist is "hard up," but because of an age-old idea that a professional man should never allow the impression to be gained that he is "out of cash" many dentists feel backward about pressing the collection of outstanding bills.

Does the coal-man or the butcher or the landlord ever hesitate to ask for money that is due him because he does not wish to be considered "hard up"? Indeed not! Is a bank ever known to hesitate about sending a notice that interest is due on a loan? Never!

From what has been said it must not

be gathered that nothing but a cold, rigid attitude is to be assumed by the dental practitioner when he is confronted with the collection of a bill. Rather should he be governed by a spirit of courtesy and dignity—firmness softened with kindness.

One might purchase a score of books containing numerous suggestions for the writing of collection letters or even samples of such letters, together with dozens of special "stunts" which the authors claim to be efficacious. Collection lawyers and collection agencies prosper to a considerable extent from the accounts that dentists and physicians cannot or will not collect.

Just what course is open to the practicing dentist in the collection of his accounts? If we were to consult an experienced collection manager, he would probably condense his answer into three words: "Use common sense."

In business, proper credit-granting is commonly considered the basis, the foundation, of good collections. To be sure, the dentist cannot undertake any exhaustive analysis of each patient's credit-standing before opening an account, but an earnest effort can be made to secure the proper necessary data that will aid greatly in bringing

about a settlement of an account should the person become negligent later on. One vital point in this connection is the correct name and address of the patient. The correct spelling of the name is of great importance. The names, Smith, Schmith, Smyth and Smythe, or Schmitt, Schmidt and Schmit, sound very much alike, while the spelling is quite different. A similar condition exists in such names as Cavanaugh, Cavanah and Kavanaugh, and Peterson, Petersen and Petterson, or even Hoffman and Kaufman. It is the spelling, not the sound, that Uncle Sam goes by when delivering the mails, therefore it is well to take every precaution to insure the safe delivery of all statements and letters relative to outstanding accounts.

Even though the name and address may be correct on the records of the dentist, there may be other reasons why the account remains unpaid. The task before the creditor is to find out the reason and, if possible, offer some satisfactory arrangement for an early settlement. The personal interview at such times is always the better way, but this is out of the question for the busy professional man, unless the patient should come to the office. The telephone, however, offers a fair compromise. So few people are without telephones nowadays that it really becomes a simple matter for the dentist to talk with a patient over the telephone. Inquiry may be made as to the health of the patient, who will undoubtedly say something about the non-payment of the bill and offer some reason for the delay. Very often a promise will be given regarding an early settlement.

Letters may be written to the debtor patient, and these are frequently effective. Letters, however, at their best, are merely cold statements of facts, and there is always the danger that the recipient may misunderstand because the letter has not "just the right tone." It follows that great care must be taken when writing collection letters.

The ideal collection letter is dignified, courteous and definite. Whether the debtor is an old or a new patient has much to do with the style of letter that should be written. A patient who has been coming to the office for years, with a past record of promptness, would seem to deserve more generous treatment in case of a "hard-up" spell than could be expected by a new patient, a stranger, or a "floater."

Sometimes, after one's best efforts have been exhausted, there comes a time when more stringent measures seem imperative. Although such steps may result in the payment of the bill, rigorous processes are usually not without their disadvantages. A resort to legal or even harsh collection measures usually means not only a direct loss and expense to the creditor, but very frequently the loss of the patient and possibly others whom he may influence.

When the day for severe treatment does arrive, however, it is well to avoid the oft-used idle threat. It is next to worthless as a collection instrument, and its use will only give one the reputation of being a bluffer. So, if you have made a threat, when the final day arrives—and not twenty-four hours later—make good your threat! Get some one to act who really will act!

Usually, however, it is not absolutely

necessary to sue in order to get the money. Dignified firmness, a firmness that is bound to be respected by the delinquent debtor, will do more to get the check quickly than almost any other method yet devised. Make your

name for firmness on collections stand as high as your reputation as a dentist, and withal let your firmness be softened with kindness.

708 West Park Avenue.

A. D. A. MEETING

OCTOBER 7-11, 1929

WASHINGTON

DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce,
care of THE DENTAL DIGEST, 220 West 42d Street, New York City.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE, CARE THE DENTAL DIGEST, 220 WEST 42D STREET, NEW YORK. YOU MAY HELP A NUMBER OF GIRLS WHO ARE JUST BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. OR IF YOU NEED HELP NOW WRITE TO ELSIE PIERCE—SHE'LL HELP YOU.

Dear Miss Pierce:

I should like to give to the office assistants something that they need very often, that is, an easy way to remove ink stains from operating gowns, uniforms and clothing. So many times an accident will occur and lemon juice, milk, or "what-not" does not remove the spot. Get a can of Rex-O, such as is used to clean the nickel; rub some of the contents on the ink spot, then with a wet cloth wipe it off. The stain should come out very nicely, even though it has been on the material for some time. India ink is more difficult to remove and should be taken care of at once, that is, not allowed to dry on the material. I hope that this will help many of your readers.

Dr. J. G. B., Texas.

We appreciate Dr. J. G. B.'s kindly thought and feel sure that it will help some of our readers.

Dear Miss Pierce:

Can you refer me to an association in ——— that would help me find a position as a dental assistant? I am compelled to move to that city.

I. C. B., Md.

ANSWER.—We regret that we cannot publish in this department the name of any association or concern that has for its purpose the placement of dental assistants. THE DENTAL DIGEST has a "Want Ad" section, and a well-worded advertisement therein may bring the desired result. There is a society for dental assistants in the city mentioned, and if I. C. B. will send us her address in that city, we shall be glad to send her information that may be of interest to her.

Dear Miss Pierce:

I am very much interested in dental ceramics and should appreciate your telling me where I can join a course in

such technic. I am referring especially to porcelain jackets. Is there such a course given in the evening?

E. N. W., N. Y.

ANSWER.—We would suggest that you get in touch with the dental schools in your city. You will no doubt receive information from them as to the most reliable course for you to take. We do not know of such instruction given in the evening. We regret that we cannot publish in this department the name of any commercial laboratory making a specialty of dental ceramics.

Dear Miss Pierce:

Will you send me a list of books suitable for a dental assistant to study? There are so many that I do not know which ones to select, and to get them all is too expensive.

F. T., Ga.

ANSWER.—If you will follow our suggestions to F. R., Oklahoma, in the February issue of THE DENTAL DIGEST, they may help you. We also advise your getting textbooks, such as are used in high schools, on bacteriology, anatomy, biology, physiology and inorganic chemistry. These will explain much that will be of value to you. You can get books on practical psychology and diet and nutrition from your library. The librarian will help you select such books as are not too complicated, and you may be able to get the textbooks also there. The Doctor doubtless has Fones's book on *Oral Hygiene*. You will find it interesting and helpful. He no doubt has also a book on anatomy which gives data on head anatomy, and if you

study this, it will explain many of the terms used each day in the course of your work and give you a better insight into what the Doctor is trying to do in each particular case.

Dear Miss Pierce:

Please tell me what to do for my hands. In this cold winter weather, of which we have so much more here, they get rough and red and often crack and become very painful. I notice this especially on days when I have had to use antiseptic washes frequently, when the doctor is doing surgical work mainly, and my hands are wet a great deal.

I wonder if you realize how much your department means to us away out in the Far West, where we have little or no opportunity for contacts with others doing the same kind of work.

I am the only assistant in a radius of several hundred miles. THE DENTAL DIGEST is the first thing I look for when the first of the month appears.

W., Montana.

ANSWER.—Somehow the care of the hands is very often neglected by assistants, and your query is very timely. You do not tell us whether the water in your locality is soft or hard; if the latter, then you should always put a little borax or "bicarb" in it and use such soaps as are manufactured especially for hard water. There is nothing more harmful to the skin, both in winter and summer, than hard water, and for that reason people who have to live in those localities where hard water is the only thing available use

cleansing creams in preference to soap and water, especially for the face.

You should never use strong alkaline washing powders and soaps. If you must do so in the office for certain reasons, then use rubber gloves.

Each time that you must wet your hands in the solution you mention, dry them very carefully when you are through, then use an emollient rubbed thoroughly into the skin. A good cold cream or almond cream will serve the purpose. Do not use a glycerin preparation, as this often irritates certain skins. If the cracks and breaks

in the skin bleed, a carbolyzed or iodized ointment should be used to prevent infection.

Be sure to keep your hands warm, even if you have to wear two pairs of gloves and carry a muff, to guard against chilblains, which are very painful and not easy to get rid of once contracted.

We are pleased to hear that you enjoy THE DENTAL DIGEST and are happy to be of service to you. We are sure that your position of being the only assistant in several hundred miles must be an interesting one.

EDUCATIONAL AND EFFICIENCY SOCIETY FOR DENTAL ASSISTANTS, FIRST DISTRICT, NEW YORK

At the meeting of the Educational and Efficiency Society for Dental Assistants, First District, New York, on February 12, 1929, Dr. Leonard and Miss Helen Wales, who is associated with the Henry Street Settlement, spoke.

Dr. A. L. Greenfield conducted a class on x-ray work on two evenings in February. A class in first aid to be given by the American Red Cross is being arranged. The date is not yet definitely decided upon and any young women desiring to join still have the opportunity, if they will communicate with Miss Agnes F. MacNeil, Director of Classes, 579 61st Street, Brooklyn, N. Y.

The Clinic Club also is progressing. The next meeting will be held in conjunction with a visit to one of the newest hospitals in the city to see the most modern method of sterilization and the

latest type of sterilizers. Mr. Crocker, who conducted a class on sterilization in December, is arranging for this visit.

The next meeting of the Educational and Efficiency Society, First District, New York, will be held on Tuesday, March 12, 1929, and an invitation to be present is extended to the members of the dental profession as well as their assistants. Those desiring applications for membership should communicate with Miss Ethel Meyerson, 27 West 86th Street, New York.

MONTREAL DENTAL ASSISTANTS ASSOCIATION

At the January meeting of the Montreal Dental Assistants Association Dr. J. S. Dohan, Associate Professor of Prosthetic Dentistry at McGill University, gave an address on the theory and practice of x-ray procedure. Miss E. Moye, President of the Association, presided.

Service and Loyalty*

By WILLIE M. CARROLL, Dotham, Alabama

A quaint old poet wrote a verse that seems very simple—almost silly—but there is a thought in it after all:

If I were a cobbler, it would be my pride
The best of all cobblers to be;
If I were a tinker, no tinker beside
Should mend an old kettle like me.

Service rounds out the whole of life, and every act of service is an act of faith. There is service to superiors, to equals, to inferiors, to man and to God. Service is a thing that is due and must be paid by every one who would avoid present discredit. It is an obligation, a debt, which can only be discharged by effort and action in the affairs of life.

The abiding sense of service and loyalty is the very crown of character. They are the upholding laws of the dental assistant in her noblest attitude. Through service the weakest become strong and full of courage.

Service and loyalty form the cement which binds the whole world together, without which all power, goodness, intellect, truth, happiness, love itself can have no permanence, without which all the fabric of existence crumbles away from under us and leaves us at last sitting in the midst of a ruin, astonished at our own desolation.

Assistants, be not diverted from your duty to your employer by any idle reflections the world may make upon

you. No assistant's spirits were ever hurt by doing her duty; on the contrary, one good act done or one sacrifice made will bring true reward.

Life is too short to waste one moment in deploring our lot. We must go after success, since it will not come to us, and we have no time to spare. If you wish to succeed, you must do as you would to get in through a crowd at a gate that all are anxious to reach—hold your ground and push hard—for to stand still is to give up the battle. Give your energies to the highest employment of which your nature is capable. Be alive, be patient, hope for the best, begin at the foot of the hill and work to the top, for there is no royal road to success. The path lies through service and loyalty to your employer. The noblest man on earth is he who puts his hand cheerfully and proudly to honest service for others. Service and loyalty are mighty and beautiful.

If the sense of service be strong and the course of action clear, the courageous will, upheld by conscience, enables the assistant to proceed on her course bravely and to accomplish her purpose in the face of all opposition and difficulty.

Among the qualities of the real dental assistant is to be found prudence, which is practical wisdom and comes of cultivated judgment. Through service the assistant learns from experience, quickened by knowledge, the right thing to be done and the right way to do it. Prudence is

* Read before the Fourth Annual Meeting of the American Dental Assistants Association at Minneapolis, Minnesota, August 21, 1928.

the perfection of reason and a guide to us in all duties as an assistant. It recognizes that there is a necessity for a certain amount of caution in all transactions of business. It weighs long and carefully the reason for or against any proposed line of conduct and calls upon the will to act in accordance with the results of such reasoning.

In nothing does prudence display itself more than in its relation to the affairs of the dental office. There are those who in the confidence of superior capacity or attainments neglect the common little services around the office. But it is a fatal delusion, as nothing will supply the place of service and loyalty in the ordinary vocations of business, no matter how superior are other qualities. Negligence and irregularity long continued make knowledge useless.

Such are the vicissitudes of human life that, whatever the occupation may be, scarcely a day passes that does not call upon all of us to exercise this quality of prudence in some of the common every-day occurrences which fate is constantly presenting. The triumph of its long practice is to be seen in those moments when to come to a wrong decision means disastrous defeat, the fatal overthrow of the hopes of a lifetime. By degrees it forms for itself a standard of duty and propriety and accumulates rules and maxims of conduct and material for reflection and meditation.

Loyalty has been defined as *devoted allegiance*. The average child is naturally devoted to those whom he loves, to those who minister to his physical wants, to those who are kind to him. This is perhaps mere instinct, for it is

true of dumb animals. The dog will defend his master to death; the patient horse will carry his owner until the beast drops in his tracks. Beautiful as such instinctive fidelity is, it is absolutely different in quality from the more noble loyalty to principles and ideals.

Loyalty must be regarded as one of the most pleasing as well as essential attributes of a fine character. It means the upholding of what seems good. It implies the very soul of honesty and may cost self-sacrifice; it implies endurance also. To be loyal, then, is to stand firmly by what one believes in.

The boy is loyal to his ball-team when he cheerfully takes the part his captain decides is best fitted for him, whether or not he likes it, and then plays to win success for the team, not with an eye first on applause for himself. The assistant is loyal to her employer when she lets no one speak slightly of him and keeps silent regarding any defects in management of the affairs of the office that she may observe. She is equally loyal when she quietly does all she can to remedy the defects and improve conditions for the benefit of her employer. Loyalty to an employer is shown by working for him as faithfully as you would for yourself, being watchful of his interests, economical, secret as to his business, etc. But, if service should lead to conniving at fraud or other violations of good principles, then loyalty to yourself requires you to quit his service. The sense of personal honor lies at the root of all noble character and action.

We must continuously apply ourselves to right pursuits. Then we shall not fail to advance steadily, though it

may be unconsciously. Be patient with your employer; he may not see your view of things and may misunderstand you. Endure, and by enduring gain self-control. Gentleness is like the silent influence of light, which gives color to all nature. It is more powerful than loudness and more beautiful.

True loyalty is founded on a sense of what we owe to Him who made us. It arises from reflection on our own failings and wants and from just views of the conditions of life. Since, then, true loyalty is significant of power and potential for good and is the high and distinctive test of a gentlewoman, should not all assistants strive earnestly to learn that spirit of loyalty?

The loyal assistant will be punctual in all her appointments. An appointment is a contract, and if you do not keep it you are dishonestly using other people's time, and consequently their money. Punctuality is politeness; it is the life of loyalty and should be made not only a point of courtesy but a point of consequence. The beginner in business should make this virtue one of the first objects of professional service. A right estimate of the value of time is the best and surest foundation for habits of punctuality, for you are not likely to economize time, either for yourself or for others, unless you fully realize how valuable it is and, when lost, how utterly irreclaimable.

Cultivate the habit of concentration, if you would be of real service to your employer; make it second nature. Have work for every moment and mind the moment's work. Whatever the service to be rendered, master all its details, its principles, instruments, applications. Concentration affords a great safe-

guard against exhaustion. She who scatters herself among many objects soon loses her enthusiasm—and how is service possible without enthusiasm?

There is one quality of mind which of all others is most likely to make our service valuable to our employer, the quality which under given circumstances causes us to act with mathematical precision, to be able to resolve and then act instantly, to precede the operation and be ready with the right instruments when they are needed.

Service and loyalty are sisters; there is a golden meaning between them. All life is but one vast representation of the beauty and value of service and loyalty. Either loyalty must be a quality graciously inherent in the heart of an assistant or it must be acquired as the lesson of years' experience, if she would enjoy the greatest good of life.

In the field of professional life we are too prone to forget that there is no royal road to great acquirements. Much of the happiness of life comes through service and loyalty to others. It is not the great boulders but the small pebbles on the road that bring the traveling horse to his knees, and it is the petty annoyances of life, to be met and conquered afresh each day, that try most severely our mettle.

In life the chief rewards are not those of a financial character. The mere accumulation of wealth in itself seldom brings happiness, so we turn to other things in seeking the real reward of life. In this particular, dental assisting holds high rank as a calling, calculated to bring its full meed of satisfaction. To take from the drawn face of agony the lines of suffering, to change a tear to a smile, to go

through life ministering to the betterment of mankind, to know when you lay your head on the pillow that during the day you have sent one poor sufferer happily on his way, to see growing up around you the friendship of men, women and children, and to know in your heart of hearts that you are being made a part and parcel of their lives—all of this is better than wealth, better than leading a legion to battle or claiming the plaudits of the multitude. For serene satisfaction in declining years there is nothing equal to the solace of knowing that you have contributed your full quota in service and loyalty to your fellow-man, and when the sum total of all you have achieved in life is measured up and evaluated, it will be found that the only thing really worth while is the contribution you have made to the welfare of others.

In the glorious records of the ones

who gave the dental assistant a status in the eyes of the world, let every assistant take heart and inspiration and pledge that she will do her part in placing the banner of the profession a little further aloft and thus do full credit to the splendid men who gave to us the foundation of what we are enjoying today.

The future holds great possibilities for our profession. Our sun is rising and we must put on full armor and make the best of our endowments, governed by conscience, with a will to do our part to the best of our ability, not quite so much concerned with the "almighty dollar" but rather led on by a desire to render the very highest service possible and to live and work under the greatest of all rules, "Do unto others as you would have them do unto you."



EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—ADDISON

A fool and his teeth are soon parted.

A genius is a bird who can open a can of sardines with the key.

The average distance bug can get anything on his radio except the next payment.

This influenza epidemic is rather hard to reconcile with the healthy throats we're all supposed to have from smoking wonderful cigars.

A bandit in Rumania stole an entire railroad train, but as soon as he tries to open a window he probably will bring it back.

(Friend)—I understand that your practice is getting larger.

(Young Doctor)—That's true. My patient has gained nearly ten pounds in the last few weeks.

"Why don't you go to our church?" asked one little boy of another.

"Because we belong to a different abomination," was the answer.

(Mike)—I got one of those suits with two pair of pants.

(Gus)—How do you like it?

(Mike)—Not so well. It's too hot wearing two pair of pants.

We cannot place much confidence in the theory that eating spinach gives a man courage, our belief being that the man who eats spinach already has it.

A Scotchman accidentally spilled some iodine on his finger. He then cut a gash in the finger so the iodine wouldn't be altogether wasted.

"What did you do this morning, dear?" asked one Chicago woman of another as they sat down to luncheon. "Nothing at all, dear; just the usual eventless forenoon. . . . Oh, I beg your pardon; I forgot; I shot my husband."

Some of these wild people we read about are not so dumb. The inhabitants of the Island of Papua solved one of their burdensome problems by eating a Dutch tax collector.

(Boy—reading aloud)—John appeared in immaculate evening dress. "Hey, Sis, what does immaculate mean?"

(Sister)—No gravy stains on it.

THEY LEARN YOUNG

The play teacher thought the children knew how to play blind man's buff. She blindfolded one little girl, and when the child did not move she asked: "Why don't you play?"

The child replied: "Where is the cigaret?"

When the plumber died his wife took no chances. She buried his tools with him.

(Graduate)—Will you pay me what I am worth?

(Employer)—I'll do better than that; I'll give you a small salary to start with.

Isn't Nature grand? But it wasn't a very brilliant scheme to put most of the vitamins in things we don't like.

A biologist has decided that the ape is not man's ancestor, and that ought to be comforting to the ape.

IMPORTANT NOTICE

Those who have special reading or research work to do at the New York Public Library had better get it done as soon as possible. A Times Square "merchant" sold the Library this past week to a Kansas farmer for \$2,000. The lions in front of the building were included in the sale, but the farmer had to pay \$100 extra for the pigeons.

(Biltop)—Say, Watson, did you ever hear this one? What's the definition of rigid economy?

(Watson)—Give it up.

(Biltop)—A dead Scotchman.

Probably the most concise rule to have on hand when in doubt as to yielding to, or resisting, temptation is the answer of a small child when asked, after a day's retreat at a school for girls, just what it was she thought the teacher had meant to bring to their minds.

Very promptly she replied:—"We should say 'yes' to Dod and 'No' to the debil."

THE COMMUTER'S EPITAPH

All ye who labor, linger here

And contemplate my fate:

In life, I lived in mortal fear

Of getting up too late.

I slept, I say, with five alarm

Clocks clustered at my head. . . .

I'm catching up now with my sleep—

Don't bother me. I'm dead.

FUTURE EVENTS

THE MINNESOTA STATE DENTAL ASSOCIATION will hold its forty-sixth annual meeting in the Auditorium at St. Paul, Minn., March 6-8, 1929.

A cordial invitation to attend this meeting is extended to all members of the American Dental Association.

GEORGE D. ESTES, *Secretary*,
911 Yeates Bldg., Minneapolis, Minn.

THE LOUISIANA STATE DENTAL SOCIETY will hold its next annual meeting at Alexandria, La., March 14-16, 1929.

B. J. LACOUR, *Secretary*,
Welsh, La.

THE WESTCHESTER DENTAL SOCIETY will hold its next regular scientific session on Tuesday evening, March 19, 1929, at the Square Studio, 3-5 Palisade Ave., Yonkers, N. Y.

The essayist of the evening will be Dr. Leon H. Fradkin of Montclair, N. J., who will discuss *The Ideal Restoration of a Lost Anterior Tooth*.

Every dentist in the County is invited to attend the meeting.

THE ST. LOUIS STUDY CLUB OF DENTISTRY, organized in 1919 for the purpose of teaching advanced dental knowledge to practicing dentists, without charge, and in continuous operation since that time, has just completed its eleventh annual session. The close of the term will be marked by a clinic and dinner on Saturday, April 6, 1929, at the Chase Hotel, Kingshighway at Lindell Boulevard.

The clinic, which will start promptly at three o'clock, will consist of the following subjects: Dental Ceramics, Fixed Bridgework, Dental Roentgenology, Rizadontia, Conduction and Local Anesthesia, Operative Dentistry, Full Dentures, Anatomy and Dissection of the Head, Tooth Form and Cavity Preparation, Dental Economics, Oral Diagnosis and Diseases of the Mouth.

Following the clinic, a dinner will be given at 6:30 as a tribute to the instructors by the students.

A cordial invitation is extended to ethical members of the profession to attend this clinic and dinner.

Bulletins descriptive of the Study Club may be had by addressing

DR. FRANK C. RODGERS,
309 Wall Bldg., St. Louis, Mo.

LA SEMAINE ODONTOLOGIQUE (Dental Week), organized by l'Association Générale Syndicale des Dentistes de France and le Syndicat des Chirurgiens-Dentistes de France, will take place on April 7-14, 1929, at the Grand Palais, Paris, France. Is it necessary to make a ringing appeal to the confrères to come? We feel certain that they will not fail in this task. It is their duty to take part in this Congress, which is their own; it is their duty to enhance its success either by articles or by their presence.

They will derive therefrom appreciable advantages, both from the scientific standpoint and on account of the new and useful improvements made in the instrumentarium and all the material indispensable for the practice of art.

The committee, always vigilant, always on the lookout for what might interest the practitioner, notwithstanding the crushing work and heavy charge which it has assumed, already has taken the necessary steps and obtained a reduction of 50% on the French railroads, all lines, for all those who, living in the provinces or foreign countries, may care to attend our Semaine Odontologique, and also their wives.

The committee has also thought that a slight pause during the work of the Congress would be wholesome and give pleasure to some, if not all. It has arranged a visit to the wonderful, immense Citroën works, which is known throughout the world.

Also, it has arranged for a visit to the model laboratories of Garches, where all the sera for the Pasteur Institute are prepared. These instructive and curious laboratories live up to the latest progress in science.

Entertainment has not been overlooked and several evenings have been set aside for it. A special program is now under consideration.

It would be superfluous to emphasize the constantly growing importance which La Semaine Odontologique assumes each year. All we need, to prove that assertion, is the attendance of foreigners. Their number was great last year—nearly 200—13 nations being represented. If this continues—and we have strong hope that it will—La Semaine Odontologique will become the Franco-European Dental Congress, and the eight days will hardly be enough for the work. What a wonderful day it will be for the profession when from all points of Europe the latest methods and the latest progress are brought to us!

THE COMMITTEE.

THE KENTUCKY STATE DENTAL ASSOCIATION will celebrate its Sixtieth Anniversary with a big Home-Coming Meeting. Efforts are being made to communicate with all former Kentuckians and all graduates of the Dental Department of the University of Louisville (formerly Louisville College of Dentistry) to urge them to attend the meeting. Many men who have not been back "home" in years have expressed their intention of attending the meeting to meet with former classmates and renew old friendships.

A program of unusual interest pertaining to general and dental health has been prepared, in which some of the leading men of the profession will participate.

The meeting will be held in Louisville, April 9-11, 1929, with headquarters at the Brown Hotel.

All ethical dentists everywhere are cordially invited to attend this meeting and can feel assured that an old-fashioned Kentucky welcome awaits them.

For further information, address

DR. J. H. FULLENWIDER,
662 Francis Bldg.,
Louisville, Ky.

THE TEXAS STATE DENTAL SOCIETY will hold its forty-ninth annual convention at Beaumont, Texas, April 16-19, 1929.

A cordial invitation to attend is extended to all ethical dentists who are members of state societies.

For information relative to exhibits, write to Dr. John E. Story, Chairman, Goodhue Building, Beaumont, Texas.

J. G. FIFE, Sec'y-Treas.,
Medical Arts Bldg., Dallas, Texas.

THE ALUMNI SOCIETY OF THE PHILADELPHIA DENTAL COLLEGE (Dental Department of Temple University) will hold its annual meeting on Wednesday, April 17, 1929, instead of April 18, as previously announced.

THE CONNECTICUT STATE DENTAL ASSOCIATION will hold its sixty-fifth annual convention at Waterbury, Conn., April 30 and May 1-2, 1929.

THE VIRGINIA STATE DENTAL ASSOCIATION will hold its annual meeting in the Hotel Danville, Danville, Va., April 30-May 2, 1929.

A. M. WASH, D.D.S., Sec'y-Treas.,
504 Medical Arts Bldg., Richmond, Va.

THE MASSACHUSETTS STATE DENTAL SOCIETY will hold its annual meeting at Hotel Statler, Boston, Mass., May 6-10, 1929.

WILLIAM H. GILPATRICK, Secy.,
358 Commonwealth Ave.,
Boston, Mass.

THE NORTH DAKOTA STATE DENTAL ASSOCIATION will hold its next annual meeting at Grand Forks, N. D., May 14-16, 1929.

L. I. GILBERT, D.D.S., Secretary,
Fargo, N. D.

THE DENTAL SOCIETY OF THE STATE OF NEW YORK will hold its sixty-first annual meeting in Rochester, N. Y., May 15-17, 1929.

Literary exercises, clinics, exhibits, etc., will be held at the Columbus Building. Dr. E. G. Link, Cutler Bldg., Rochester, N. Y., is chairman of the Exhibits Committee. Dr. John T. McIntee, Cutler Bldg., Rochester, N. Y., is chairman of the Clinic Committee.

The Executive Council will convene for the transaction of the business of the Society on Tuesday, May 14, at 3:00 P. M.

ESSAYISTS:

Frederick B. Noyes, Chicago, Ill.
Chalmer J. Lyons, Ann Arbor, Mich.
O. G. L. Lewis, Philadelphia, Pa.
P. C. Lowery, Detroit, Mich.
T. W. Maves, Cleveland, Ohio.
James K. Burgess, New York, N. Y.

During the time of the meeting sessions of the New York State Dental Hygienists Association and the Dental Assistants Association of the State of New York will be held.

Headquarters will be at Hotel Seneca, and reservations should be made direct with the hotel management.

For information with reference to the literary exercises, clinics, etc., apply to

A. P. BURKHART, Secy.,
57 East Genesee St.,
Auburn, N. Y.

THE DENTAL SOCIETY OF THE STATE OF NEW YORK will hold its sixty-first annual meeting at Rochester, N. Y., on May 15-17, 1929.

A cordial invitation is extended to all ethical dentists who are members of state societies to attend. The Society will be pleased to extend a cordial welcome to all ethical Canadian dentists also.

For information with reference to the exhibits, write to E. G. Link, 226 Cutler Bldg., Rochester, N. Y.; clinics, John T. McIntee, Chairman,

Cutler Bldg., Rochester, N. Y.; literary exercises, etc., A. P. Burkhardt, Secretary, 57 East Genesee St., Auburn, N. Y.

THE DENTAL ASSISTANTS ASSOCIATION OF THE STATE OF NEW YORK will hold its first annual meeting at Rochester, N. Y., May 16-17, 1929.

A cordial invitation is extended to dentists, dental hygienists and dental assistants to attend the sessions and clinics.

ZOA H. DICKHAUT, *General Secretary*,
344 Woolworth Building,
Watertown, N. Y.

THE NORTHEASTERN MASSACHUSETTS DENTAL SOCIETY will again convene at the New Ocean House, Swampscott, Mass., June 10-12, 1929.

For further particulars, address

HENRY I. YALE, *Secy.*,
Peabody, Mass.

THE INDIANA STATE BOARD OF DENTAL EXAMINERS will meet in the House of Representatives Room, State House, Indianapolis, Ind., at 8:00 A. M., June 17, 1929, for the purpose of examining all applicants with proper credentials. All applications should be in the hands of the Secretary one week before the meeting.

For applications, clinical requirements and other information, address

J. M. HALE, *Secy.-Treas.*,
Mount Vernon, Ind.

THE MAINE DENTAL SOCIETY will hold its annual meeting at the Poland Spring House, South Poland, Me., June 20-22, 1929.

W. F. FOGG, *Secy.*,
168 Main St.,
Yarmouth, Me.

THE AMERICAN SOCIETY OF ORTHODONTISTS will hold its annual meeting in Estes Park, Colorado, July 15-19, 1929. All ethical dentists are invited. A registration fee will be charged to non-members.

Hotels are Stanley (headquarters), The Crag, Lewiston and Elkhorn Lodge. For hotel information, write to Dr. Fred W. Beesley, Republic Bldg., Denver, Colo. Regarding transportation, write to Dr. Kirman E. Taylor, Mack Bldg., Denver, Colo.

ALBERT H. KETCHAM, *D.D.S., President*,
1232 Republic Bldg., Denver, Colo.

CHARLES R. BAKER, *D.D.S., Secretary*,
708 Church St., Evanston, Ill.

THE ARIZONA BOARD OF DENTAL ENGINEERS will hold its next meeting at Flagstaff, Arizona, beginning July 29, 1929.

For further information and application blanks, address

EUGENE MCGUIRE, *Secretary*,
420 Security Building,
Phoenix, Arizona.



